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TOP OF THE MONTH

CONSUMER marketing. A significant majority of the industry's retailers support awareness program; a less than decisive majority of the distributors and OEMs agree. Is the problem 'money', where it comes from and who controls it? Some new thoughts in this issue.

SMATV's legal position, after the adoption of the 'Section 805' legislation this past fall, has changed. Some systems installed to use premium and other services without programmer consent are in trouble. Peter Sutro explores that here, this month.

DID Aristrocrat Products 'copy' a Paraclipse antenna with their 12 foot mesh design? Is it important who did it first? Who cares? We look at an Aristocom antenna at the CSD Lab this issue and try to see beyond 'the clips' for the genius involved.

EQUIPMENT specifications continue to baffle many dealers; old and new alike. Our continuing series trys to sort out some of the less obvious but more important receiver specifications for you concentrating on those video parameters which most affect video quality in the consumer home.

CANADIAN Bureau Chief Mark Lewis is hot on the trail of curing TI with **OUT** filters. How do you do that? with a better receiver! On page 30

Las Vegas? Are you there? See CSD and the gang from Boresight in booths 124, 126, 128 and 130!

APRIL 01 1985

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OUR COVER/ Florida dealer Frank Abruzzo (left) and New York dealer Jerry Fischette are all smiles as CSD tests with M/A-Com VC2C descrambler reveal that virtually ANY receiver will work with descramblers. From Toki to DX, Drake to Luxor we covered more than a dozen popular units; full details in CSD/2 April 15th. See Coop's Comments page 4.



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- SCRAMBLING UPDATE/ Not What You Think
- 'THE' 1986 TVRO Handbook
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HBO SCRAMBLING Progress

I have kept 'mum' on the progress relating to HBO scrambling for several months just to see what might happen if we ignored the

subject. It has not gone away.

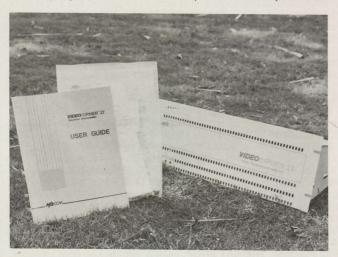
HBO still insists they will be scrambling this year and throw out various dates that wander between March 31st (did they make it???) and 'late summer'. Thousands of their VC2C (cable style) descramblers are now out there in the field and cable techs and engineers are under some pressure to get them installed and operational. HBO continued to provide a daily 'scrambled feed' on Galaxy 1, TR3 so the cable system operator may check out his box to see if it was working OK. Back in late January I was able to get our hands on a VC2C and play with it for as long as we wanted to play with it.

The VC2C has a variety of connectors on it; a video input (which you are supposed to feed with the unclamped video output on your receiver), a loop-through fitting for a second (in line, backup) descrambler, a bypass fitting and an output; on the video side. There are also audio 'left' in and out and audio 'right' in and out (for the eventual day of HBO being in stereo) as well as monaural in and out. The system gives you an audio and a video output level adjustment to

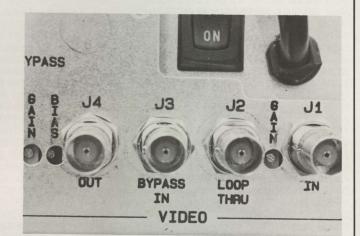
match your (cable) modulator after the VC2C.

Inside you quickly notice that the parts sourcing was truly world-wide; there are IC type devices stamped 'Made in USA', 'Made in 'Philippines', 'Made in Korea', 'Made in El Salvador'(!) and so on. The largest IC type devices were manufactured in The Philippines. Wandering around inside of the VC2C is quite a geography lesson.

The box goes in your video output line and if you believe the HBO plus M/A-Com news releases and statements of the past nine months or so, a receiver which did not have the proper (rigid) specifications was not going to produce unscrambled pictures. You may recall that



VC2C DESCRAMBLER analyzed for CSD had some surprises; it worked on marginal signals with marginal receivers in spite of concerns that video waveform must be 'exceptionally pure' if the descrambler was going to function.



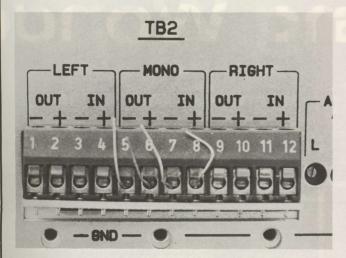
M/A-Com allowed certain technical interfacing requirements to 'leak' out in our August (1984) issue of **CSD** and then in October and November they supplied virtually the same specs to any bonafide receiver manufacturer who asked for them. Since that time the M/A-Com Linkabit facility has been routinely accepting manufacturer's receivers for 'test'; they check out your receiver to see if it has the appropriate video quality and specs to perform with the VC2 series of descramblers. In theory, when a receiver does not meet their requirements they claim they will make 'suggestions' to the receiver manufacturer which, if he follows, will get him on the right track with an 'HBO scrambling compatible' receiver.

We first tried the VC2C on a variety of cable type receivers; S-A and that ilk. All produced descrambled video. Then we moved 'down a notch' and tried it with some of the top of the line home TVRO receivers. Again, all produced descrambled video. So we moved down to the mid-price-range receivers and tried again. Once again, they all produced descrambled pictures; even those that did not have the appropriate 'unfiltered, unclamped' baseband video output jacks (we simply used a small capacitor to jumper into the appropriate portion of the receiver circuit where we could 'snare out' the unclamped and unfiltered video).

By the time we were done with this exercise, I was puzzled. I knew that most of the home receivers we tried this with did not have anything approaching the tight video specs which HBO assured us we must have to get descrambled video. Some of the receivers took a little longer to 'lock up' on the unscrambled signal than others; up to several minutes in some cases but once unscrambled the pictures stayed unscrambled; there was no flitting back and forth between scrambled and unscrambled.

I was also delighted to find that the pictures would unscramble even with relatively noisy inputs; you did not have to have a noise-free-picture to produce unscrambled video. The audio, however, seemed more demanding.

Remember that with the Linkabit scrambling system, the audio is turned into a digital format signal; there is no 'carrier', per se, and even



CONNECTIONS into and out of VC2C include provision for future stereo service from HBO/Cinemax.

if a pirate somehow figured out how to unscramble the video (the waveform is not THAT complex) he would still be faced with creating audio from a digital data stream which is itself encoded. When the signals were too weak to produce noise free (unscrambled) video, the audio 'popped' and 'crackled'; every now and then as some digital data in the stream would be lost or buried in the noise and the audio demodulator would respond with a 'pop'

OK, so 'they' have the boxes out; I'd estimate perhaps 3,000 by the time you read this. And the next (and last) 7,000 on the way. How are things going with the cable companies that are receiving these descramblers?

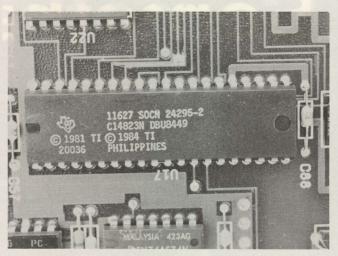
I talked with perhaps a dozen 'small' cable operators, people whom I knew were using Vidiark '8-Ball' antennas and Automation Technique home-style receivers (for example). These small cable firms had bought their equipment out of 'our' industry back in 1981 and 1982 because we offered them adequate performance for a fraction of the S-A and Microdyne pricing. I found these system operators were taking the same approach to descrambling. They were going in (or had gone into) their AT (etc.) receivers and locating the spot where the video was still not clamped or filtered. Through a small coupling capacitor they are bringing out their video lines to an 'F' or 'BNC' fitting they are sticking on the receiver's rear apron (or even an RCA 'Phono' jack') and then onto the VC2C descrambler. Most of these people had the same surprise I had; these inexpensive, cheap if you will, receivers were doing a just-fine-job of decoding the scrambled HBO signal. They were as puzzled, and delighted, as I was.

Which raises an interesting question.

"Why did HBO plus M/A-Com release those super-tight and

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WORLD Geography lesson/ IC and LSI devices inside of VC2C come from numerous worldwide production centers.

super-sophisticated 'specification requirements' if they were not, in fact, mandatory?" I discussed this with several receiver OEMs in the field and that got some of these people involved in the loop; at least four I know of promptly found a 'friendly cable operator' who allowed the receiver OEMs to 'borrow' a VC2C for a few days. The concensus at this point seems to be simply this:

'Either HBO (and M/A-Com) have redesigned the VC2C now being shipped in a significant way, so that it does not in fact require such 'tight video specs', or the specs never were that tight and they claimed they were that tight only to gain some unknown marketplace advantage for M/A-Com'.

I talked with a contact at HBO about all of this and he told me that 'yes indeed' certain relaxations had been done on the VC2C descrambler circuit; in particular the original specs which called for 1 volt peak to peak, plus or minus a very small deviation, was now considerably relaxed. He also told me that HBO had been very surprised, after surveying their smaller cable firm affiliates last fall, to learn that a significant number of the smaller cable operators were, in fact, using Drake and Automation Technique and KLM (etc.) home-style receivers for their HBO (and Cinemax) feeds.

'We figured that when these affiliates got their assigned VC2C units" he went on "that it would take them a few weeks to a month to decide they had to upgrade to more sophisticated receivers. So we built into our planning schedule several extra months to allow these smaller affiliates the time they needed to reach this decision and then go out and purchase more complex receivers, such as from Microdyne or S-A (and so on).

Well, double surprise; sure, some systems will have to replace some receivers. But not nearly as many, it now seems, as previously anticipated.

So if small cable firms using Drake and Automation Technique receivers are not going to have to throw out the 'cheap receivers' in favor of more expensive commercial grade units, what does that say about the concern that existing home TVRO owners will also face the same type of 'trade-up' situation?

Certainly a significant part of the M/A-Com marketing strategy, for their H1 and T1 receiver lines, has been their 'HBO/scrambling compatible' feature. Certainly many-many dealers have been told, over and over again, that if the dealer handles low-cost, el-cheapo receivers, he (may) (will) find himself 'frozen out of' the descrambler business cycle down the road when HBO finally does scramble. Was all of this just 'more hype' or did M/A-Com really believe what they were saying? We may never know.

I do know this; I am not going to be so naive in the future as I may have been in the past. Until somebody has the facility to line up 20 or more receiver brands and models in one location at one time, and can

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RECEIVER SPECS/ WHAT THEY MEAN: (Part Two)

IF What?

One of the more pleasant 'arguments' relating to TVRO receiver specifications deals with something called 'IF bandwidth.' What in the world is this?

When the basic satellite signal is received by the LNA and is amplified, the signal(s) are passed on through a connector or piece of cable to a downconverter. If our system is a non-block system, the output of the downconverter is a new frequency (no longer the satellite 3,700 to 4,200 MHz band) and where we went 'into' the downconverter with **up to 12 transponders** (all of those on 'one side' of the polarization choice), we come 'out of' the downconverter with but a **single** transponder.

This new frequency is called the **intermediate frequency** or 'IF' in abbreviation. How come?

Well, the original frequency is our microwave band (3,700 to 4,200 MHz or 3.7 to 4.2 GHz; gigahertz) and the 'ultimate' or 'end' frequency will be our RF re-modulated (modulator) out channel (such as 3 or 4 going to the TV set). In between the microwave frequency part of the receiver, and the 'RF output' part of the receiver we have at least one (and perhaps two) other frequencies; intermediate(s) as it were.

The receiver's IF portion or section does several very important things; it has specialized filtering built into this portion of the receiver and that filtering totally isolates our one, selected, transponder/channel from the other 11 transponders which came into the downconverter from the LNA. This 'selection process' is mandatory at some point since without a selection process we would have a 'jumble' of two or more sets of video (picture) and audio (sound) on the tube and in the speaker at the same time.

The IF also supplies amplification or gain which is required if we are to elevate the desired signal above the non-desired 'noise.' In many receivers the IF is also where gain 'control' is applied; either an **AGC** (automatic gain control) circuit which maintains a constant signal level to the picture tube and speaker, or, a 'limiter' which acts as a super-AGC to restrict very strong signals to some predetermined (receiver established) level.

All of this process gets back to the 'bandwidth' of the IF; something we measure in MHz or **megahertz**. And as you might suspect, the IF of the receiver has a good deal to do with the ultimate performance of our receiver system.

All TVRO receivers have an IF; there are no exceptions to that statement. Block or BDC receivers also have an IF; actually they will have a pair of IFs; the first IF is, unlike our single or double conversion receiver IFs, not limited to a single channel at a time. A block downconverter receiver can

also be called a 'block IF' since in a BDC system the entire 'block' of RF signals (3,700 to 4,200 MHz) is shifted as an entire 'band' down to a lower frequency range (such as 450-950 or 950-1450 MHz). However, in a block system all of the channels are still mixed together and the 'IF' has not yet done its filtering to separate out a single channel for further amplification. So in any block downconversion system we have a second conversion stage which now selects just a single channel or transponder, out of the 'block of transponders' within the 'block IF,' and it translates or moves that single transponder down in frequency, all by itself, to the final (or lower) 'IF.' So what follows applies to both the single and double conversion 'traditional' receivers as well as to the newer block or BDC version receivers, since ultimately all receivers end up at some point processing just a single channel at a time. From this point forward, when we speak of 'IF' we will be speaking of that segment of the receiver where only a single channel or transponder is being electronically processed.

STARTING Properly

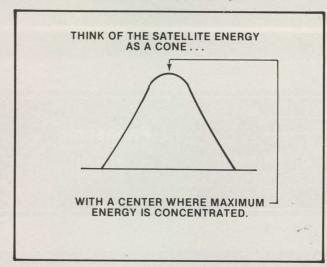
The satellite signal appearing within the IF is a 'cone of energy' and as we depict here that **cone of energy** is strongest in the center. The satellite signal is concentrated in the center of the uplink transponder and this concentration is maintained throughout the system all the way down to our last IF stage and into the demodulator (the stage which converts the original energy into a picture and ultimately the sound).

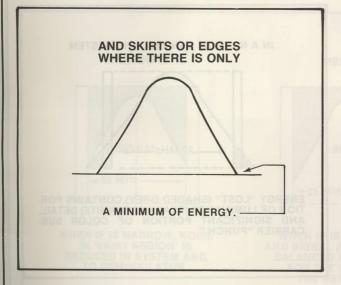
Now, that 'cone of energy' has a maximum strength or power in the center, while at the edges (or 'skirts') the energy is at a minimum. The area from the maximum (peak) to the minimum is called 'the skirt.' You can figure out why.

Imagine that the receiver IF is a 'window' and you are going to look through that window, from directly in front of the window casings, at the satellite 'cone of energy' beyond the window. The window sides 'frame' or mark the edge of your 'vision' of the cone.

Our window can be 'wide' and we can see all of the cone of energy, starting at the top or peak and down the skirts on both sides to the minimum. In effect, all of the cone fits into our window and we lose 'view' of none of the cone.

Or, the cone can be viewed through a narrow window in which case the casings on the two sides are moved closer to the center and we see only the peak and part-way-down the skirts. We cannot see the very bottom edge where the skirt



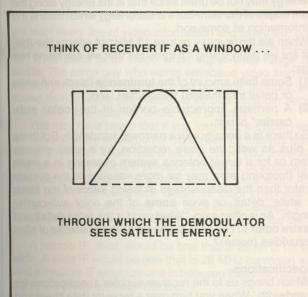


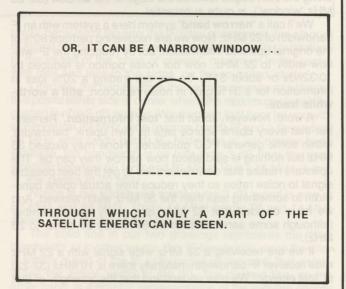
stops because the window is too narrow. So in this case we are actually **missing** some of the skirt 'information' because our window is too narrow to allow us to 'view' it all.

Remember, our receiver IF is a 'window' and just as our imaginary window could be changed to allow us to look through and see all or just a portion of the 'intelligence' or 'information' or 'view' beyond the window, so too can a receiver IF be made wider or narrower to enlarge or reduce the amount of satellite energy the receiver itself sees.

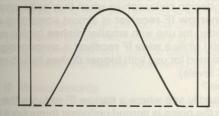
You might suspect that the ideal IF 'window' would be a window which is wide enough to see all of the satellite energy in the cone, including that energy which falls 'down the skirt' close to the bottom. This would be true if we were not also receiving another form of 'energy' in the same window at the same time; noise.

Remember that noise is the opposite of signal; we want lots of signal and no noise in our final picture and sound product. But also remember that noise is built-into the system; the sky has noise, the earth has noise, even our LNA (low NOISE amplifier) has noise. So try as we might, there will be some noise in the system all of the time.





AN IF CAN BE A 'WIDE WINDOW' . . .



THROUGH WHICH ALL OF THE SATELLITE ENERGY IS SEEN.

Here is a basic truth of receivers:

"The wider the IF bandwidth, the greater the amount of noise in the system."

While the signal is concentrated, and strongest, in the 'center of the cone,' the noise is equal throughout the full window. Cutting the window in half (in width) will reduce the amount of noise in the picture by 50%. However, cutting the window in half (width) by 50% may eliminate less than 50% of the signal since the signal is concentrated so heavily in the center of the window.

It follows then that there is an opportunity here to compromise. How's that?

If we reduce the width of the window by 25% we lose 25% of the noise, since the noise is spread equally throughout our 'IF window.' The same 25% reduction may only lose 10% of the signal, however, since the signal is not spread equally throughout the window.

A textbook perfect receiver would have a 36 MHz wide IF since a full US/Canadian DOMSAT transponder is 36 MHz wide. However, the textbook width is only used by people like NBC (TR8, F1R) and most transponder uplink operators cut

back on the bandwidth they are using to something closer to 30 to 32 MHz. That means that if you wanted to design a receiver which would recover or capture 100% of the energy or signal transmitted by a service that was uplinking a 32 MHz wide signal, you would have receivers with a 32 MHz wide IF.

Now let's be more practical.

If an uplink is 32 MHz wide in actual fact, but 90% of that energy is contained in say 24 MHz of the 32 MHz width, what are we doing when we reduce our IF bandwidth to 24 MHz wide?

- We are still recovering 90% of the picture 'information' transmitted by the uplink, but,
- We have reduced the amount of noise in our system by 25%.

In effect, we trade a 10% information loss for a 25% noise loss; a fair trade under most circumstances.

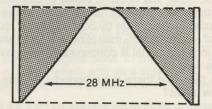
We'll call a 'wide band' system here a system with an IF bandwidth of 28 MHz. Now we are recovering perhaps 95% of the total energy supplied by the uplink, through the satellite, and we are allowing 28 MHz of 'noise' into the system. As you can see here, the area occupied by the noise, as measured along the skirt edges towards the edge of the window (our 28 MHz 'window'), is quite substantial.

We'll call a 'narrow band' system here a system with an IF bandwidth of 22 MHz. Now we are recovering perhaps 80% of the original uplinked information, but by reducing the IF 'window width' to 22 MHz, now our noise portion is reduced by 10/32nds or about 31%. So we are trading a 20% loss in information for a 31% gain in noise reduction; still a worthwhile trade.

A word, however, about that 'lost information.' Remember that every uplink source sets its own uplink 'bandwidth' within some general FCC guidelines. None may exceed 36 MHz but nothing is said about how narrow they can be. The uplinkers realize that downlinkers like to get the best possible signal to noise ratios so they reduce their actual uplink bandwidth to something less than the 36 MHz width allowed. And we have decided that 32 MHz is a pretty typical number (although some services such as SPN may be closer to 28 MHz).

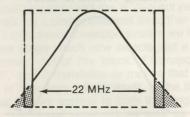
If we are receiving a 32 MHz wide signal with a 22 MHz wide receiver IF bandwidth, naturally there is 10 MHz (32-22) of 'lost energy.' We now understand that the 'strength' of that

IN A WIDE BAND SYSTEM (28 MHz)



VERY LITTLE ENERGY IS "LOST" SO DETAIL AND COLOR REMAIN GOOD; HOWEVER, AREA WITHIN WINDOW WHERE NOISE IS PRESENT (SHADED GREY) IS LARGER NOW AND NOISE DISTRIBUTION MAY INCREASE.

IN A NARROW BAND (22 MHz) SYSTEM



ENERGY "LOST" (SHADED GREY) CONTAINS PORTION OF LUMINANCE (BLACK AND WHITE) DETAIL, AND SIGNIFICANT PORTION OF COLOR SUBCARRIER "PUNCH."

lost energy may not be great since that is the energy along the bottom edges of the skirt. But it is still energy which means it is still information of some sort.

When we throw away or lose 10 MHz of energy like this, what are we really losing? It turns out that we are losing two things:

- Some finite amount of the luminance (black and white or detail information) transmitted, and,
- A perhaps appreciable portion of the 'color subcarrier' punch.

So there **is** a penalty with a narrower bandwidth. But there is a **plus as well**; the noise reduction, for a small antenna system or for a larger antenna system operating in a weak signal (footprint) area may be more valuable to the system operator than the disadvantage of losing **some** of the black and white 'detail' or even **some** of the color sub-carrier 'strength.' As is often said, "What good is the **extra detail** and the **extra color** if I can't see the **basic picture** because of all of the sparklies (noise)?."

IF Specifications

Which brings us to the receiver supplier specifications for 'IF bandwidth.' When you turn over a receiver data sheet and begin to read the stated or claimed specifications for a receiver, you will virtually always find some claim for 'IF Bandwidth.' Here the receiver manufacturer is telling you 'how wide his window is'; or, the bandwidth of his IF filtering system.

Generally speaking, we have receiver suppliers who believe in narrow IFs, medium IFs and of course wide IFs. The narrow and wide people are making 'strong statements' about their receiver design philosophies when they settle on one or the other. A **narrow IF receiver** is almost screaming at you that it is intended for use with **smaller dishes** (which receive smaller signals) while a **wide IF receiver** is announcing that it has been designed for use with **bigger dishes** (which receive bigger signal levels).

Why is this?

We can readily see where a narrow IF reduces the noise content since the noise is spread uniformly throughout the IF bandwidth. And since the satellite energy is concentrated in the center, this is a reasonable trade-off, if not taken 'too far' towards 'too narrow.' But what is the receiver with a wide IF saying to you?

Simply that this receiver designer believes that his custom-

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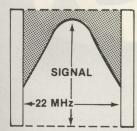
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NARROW IF



WHEN IF IS NARROW, NOISE IN 'SKIRT REGION' IS REDUCED IN SYSTEM AND TO DEMODULATOR.

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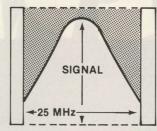
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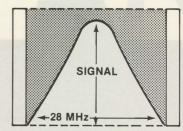
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MEDIUM IF



WHEN IF IS MEDIUM, NOISE AND SIGNAL ARE MORE NEARLY BALANCED AND BOTH FIGHT FOR THE ATTENTION OF THE DEMODULATOR.

WIDE IF



WHEN IF IS WIDE, NOISE MAY OUT-WEIGH SIGNAL UNLESS SIGNAL IS STRONG, OR DEMODULATOR WOULD SEE PREDOMINANCE OF NOISE.

ers want every line of video information and every IRE unit of color in its exact, original form just as it left the uplink transmitter. Wide band is to video what super-wide-range is to audio. The same guy who wants wideband video also has a stereo system in his house which will produce, faithfully, every sound from 20 hertz per second to 20,000 hertz per second. Wide band, in a nutshell, is the 'hi-fi of video.'

You may have heard that if you installing a system which will be used with a projection or big screen TV that you want to select a receiver which has a wide IF. Now you understand why, since the projection process 'blows up' or enlarges the basic picture elements to several times 'normal size.' And if those picture elements lack 'detail' or 'color crispness' because these elements were 'lost' back in the receiver IF, the result will be a large picture that is 'blurred'; not crisp and not good color.

A narrow IF, then, would be one that is 22 MHz (or less) wide. A wide IF would be one that is 28 MHz (or more) wide. And a medium IF would be one in between these two numbers with 25 a pretty common number.

Can you tell the difference between 25 and 26, or, 22 and 21? Not with your eye and in fact you may have some difficulty telling the difference between 22 and 25 or 25 and 28 on MOST transponder signals. Remember that each transponder or uplink operator selects the width he is comfortable with and even after selecting that width the adjustments on the uplink transmitter can vary the actual width either side of the selected width by several megahertz (MHz). You might 'measure' WGN at 32 MHz wide on Tuesday and 29 MHz wide on Wednesday, just as an example. So the differences you see, unless you are comparing two receivers at the same time on the same signal (transponder), may be differences caused by the uplink operator and not the receiver(s) after all!

HARD IF Measurements

Thankfully, most receiver designers/manufacturers have adopted the same basic 'technique' for measuring (and specifying and publishing) their IF bandwidths. It works this way.

In the center of the bandwidth, or at 70 MHz in a 70 MHz iF system, the signal level from a test instrument is measured through the bandwidth filter system within the receiver. Now the signal is measured in both frequency directions and even-

tually, because of the way the IF 'filter' is designed, the amount of signal starts to fall off or get lower. This is similar in 'picture' to the image of the 'cone of energy'; maximum in the center with less and less to the sides, on the so-called 'skirts.'

Officially, the bandwidth is the width in megahertz between two points either side of center where the maximum signal (the center) is now 3 dB weaker. We diagram that here for you with a theoretical 22 MHz wide (narrow band) IF and a theoretical 28 MHz wide (wide band) IF. Note that in our narrow band example, the bandwidth is no less than 3 dB from the peak strength between 59 MHz and 81 MHz. That's 11 MHz + and — the center at 70 MHz.

Notice in our **wideband system** the 3 dB 'point' is now at 56 MHz and 84 MHz. That's 14 MHz below 70 and 14 MHz above 70 or a total of 28 MHz wide.

The solid line in our two drawings represents the 'filter bandwidth' or in other words, the 'IF bandwidth' since the filter is simply a part of the IF (although it is 'the part' that establishes the actual 'width' of the IF). The dashed line, on the other hand, is a graphic representation of the satellite energy 'bandwidth'; that's our 'cone of energy' back again and now we see it superimposed **inside of** the receiver IF bandwidth. Yes, it appears to be 'narrower-than' our IF bandwidth although the two 'skirts' are following a parallel 'track' from the peak levels at 70 MHz down to the minimum levels either side of 70 MHz.

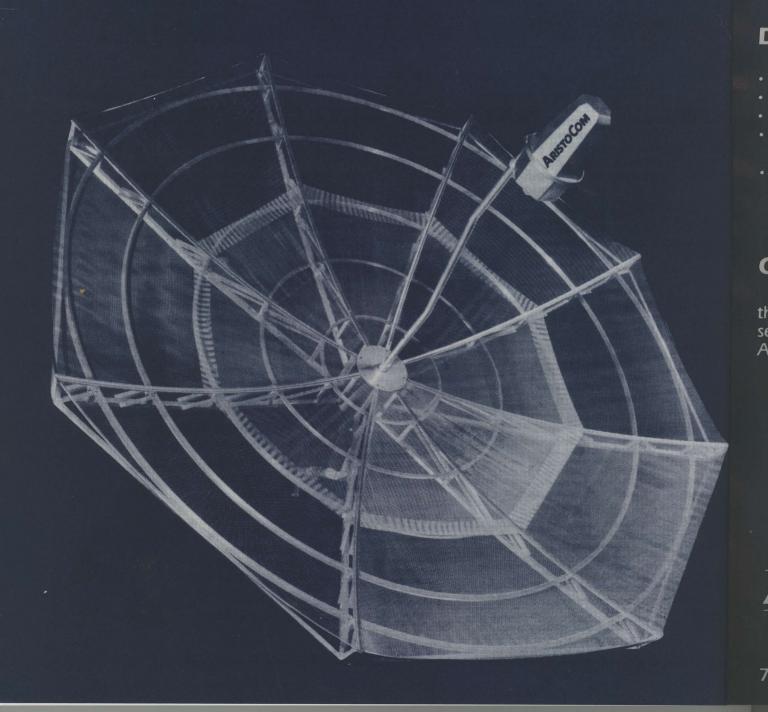
So the bandwidth published or stated by the receiver supplier is actually something called "the 3 dB bandwidth" which simply means that this is the width, in megahertz, of the IF processing system as measured between two points which are 3 dB lower in level in the IF than the center of the IF (70 MHz in our example).

PUTTING This Information To Work

Now that you understand the 'IF bandwidth' sophistication, you can do your own subjective testing of receivers. Those with similar or identical bandwidths (such as 22 MHz) should, in fact, be directly comparable for threshold sensitivity **and picture 'quality.'** It is not fair or even meaningful to try to compare a 22 MHz IF receiver with a 28 MHz IF receiver for 'color quality' since we now know that the 28 MHz receiver

RECEIVER SPECS/ continues on page 14

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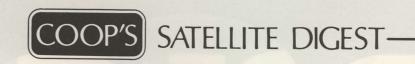
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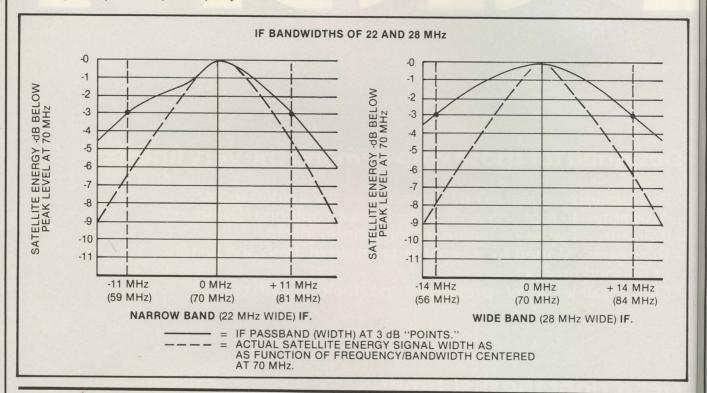


RECEIVER SPECS/ continued from page 11

should be significantly better in the color quality department. (If you find this not to be the case with a receiver, suspect that the receiver is not the IF stated!)

It is possible, with practice, to simply walk through a trade show where there are dozens and hundreds of receivers operating and 'eyeball' the picture quality and estimate within a couple of MHz the bandwidth being employed by the receiver designer. It is also possible to spot a receiver which has had its IF bandwidth 'improperly aligned'; a 22 MHz wide receiver with lots of noise probably has had its IF aligned too wide by the alignment technician.

We'll continue our look at system measurement techniques and equipment specifications in the May 01st issue of CSD.



SMATV FIREWORKS (Now It's Illegal Again!)

One of the questions most frequently asked by people considering the purchase of a TVRO system has always been: "Can I share it with my neighbor(s)?". Until the recent development of reliable block downconversion receiver systems and the concentration of most of the popular programming on Galaxy I, the answer has been that it was a technical nightmare and, as a practical matter, unfeasible.

The technical problem centered on the difficulty and expense of splitting the signal to two or more dual conversion receivers so that one neighbor could, for example, watch HBO

Peter C. Sutro, President MPI Satellite, Inc. Bernardsville, N.J.

A slip of the pen, the rush to pass legislation under the pending closing of Congress, has resulted in a serious question regarding the legality of BDC 'shared' home TVRO systems. Cable and other 'non-home-TVRO' interests are arguing that a BDC system, using a common antenna, LNA and downconverter may NOT be shared between two or more homes or family dwellings. They point to language in the Satellite Viewing Rights Act as their source of support. TVRO, meanwhile, believes that if the language means what it says, it was not the intention of Congress to pass such language. Industry veteran Peter Sutro crystalizes the opposing arguments for us.

while another watched ESPN. Additionally there was the problem of the neighbor with the master antenna actuator control moving the antenna just as the HBO movie was at its most exciting point or the ESPN basketball game was tied with 30 seconds to play. This made for very angry neighbors, negating the practicality of shared systems.

In early 1984, however, it became clear that such systems were becoming practical because of the concentration of HBO, Cinemax, Showtime, The Movie Channel, Disney, ESPN, CNN, WTBS, WOR, Nashville and other of the most

popular pof the ne foot ante reliable to ments appotential or share groups of apartment antenna, living unit transpon pendently such a symbile for

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Let us and see to seem that stemmed from the traditional of their di popular premium programs on the super-strong transponders of the new Galaxy I satellite. This enabled the use of 5 and 6 foot antennas coupled with newly introduced inexpensive and reliable block downconversion electronics. All of these elements appeared to make possible the creation of a new, and potentially huge, branch of the satellite industry; mini-SMATV or shared-TVRO. This new business would enable small groups of people living in close proximity such as in garden apartments, condominiums and trailer parks to share an antenna, LNA's and downconverters while owning in their living units their own receiver capable of tuning in any of the 24 transponders on Galaxy I and of watching a program independently of what their neighbor(s) were watching. The cost of such a system for two sharers would be in the \$1,200 range while for 8 sharers it would be well under \$1,000 per sharer.

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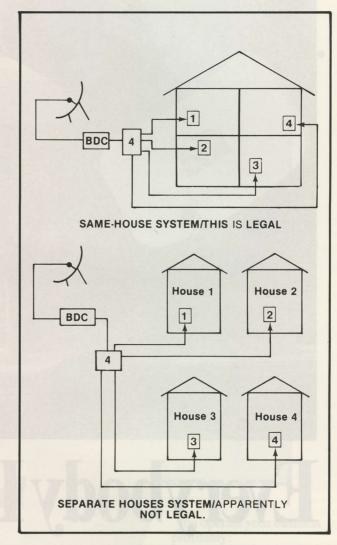
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But a funny thing happened on the way to this new business. When President Reagan signed Public Law 98-549, the Satellite Viewing Rights Act, on October 30, 1984 it represented a landmark decision for the TVRO industry and for the private or back-yard earth station owners. The near miraculous speed with which this legislation was enacted as an amendment to the long-debated cable bill enured to the great credit of SPACE and its counsel, Rick Brown. However, in the process of writing compromise clauses which the Cable TV world would accept (even though they hated the very concept of legalizing private earth stations) some language crept in which, perhaps unintentionally, dealt a crippling blow to the concept and legality of shared-TVRO

The bill said, in part: "The term 'private viewing' is intended to describe a situation whereby an individual purchases or otherwise acquires satellite receiving equipment and uses such equipment to receive satellite cable programming which he views within his private dwelling place . . . Thus it is not intended that 'private viewing' include any retransmission by so-called 'private cable' or 'satellite master antenna television' systems. Nor is it contemplated that an individual may redistribute programming received by his satellite equipment to the homes or residences of his neighbors."

The problem may well be one of semantics and the key word here is "redistribute". Are two neighbors sharing a common antenna, LNA's and downconverters but owning their own receivers (capable of receiving different signals independently of one another) actually engaged in "redistributing" programming? Neighbor A is not receiving a given program (HBO for example) and "redistributing" it to Neighbor B since Neighbor B could well be watching ESPN or any of the 23 programs which Neighbor A was not watching. It would seem that the shared satellite antenna itself, together with its shared electronic equipment (LNA's and downconverters) was actually the "deus ex machina" doing the distributing rather than any of the sharers doing any "redistributing". However, it is those semantic moot points on which law cases are built. Unfortunately, one cannot rely on judges' knowledge of the technology involved to make subtle distinctions between what a shared block downconversion system does versus what a traditional SMATV system does. The latter is clearly not exempt under the new law.

Let us examine what the spirit of this new law appears to be and see whether it has relevance in this application. It would seem that the genesis of the Satellite Viewing Rights Act stemmed from the desire of many legislators, especially those from the sparsely populated areas of the U.S. which are traditionally underserved by VHF and UHF television because of their distance from broadcasting centers and by cable tele-



vision because of the low population density, to provide their constituents with television programming which other Americans enjoyed. An argument employed by some legislators recognizing the legitimacy of the use of private or back-yard satellite earth stations centers on the public ownership of the airwaves. It has been argued that this applies only to terrestrial broadcast services and does not give the right to citizens to intercept other communications not intended for general consumption such as satellite programs on microwave frequencies requiring specialized equipment to make them watchable on conventional TV sets. The proponents of the Satellite Viewing Rights Act argued that the equipment necessary to receive satellite transmissions was readily and affordably available (and largely of American manufacture) and if programmers wanted payment for their material, they should encrypt it. The statement, "If it rains in my back yard, I get wet; if there is a television signal in my back yard, I watch it" was often quoted and (probably erroneously) attributed to a great many legislators. The somewhat facetious corrollary, "If they don't want me to watch it, let them get it out of my back yard (or air space)" was also widely used. In any case, it was established that private earth station owners would be more than willing to pay a reasonable price for satellite program-

SHARED MASTER ANTENNAS/ continues on page 18





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This Kid Means Business.

SEE US AT SAT EXPO BOOTH — 1020-1032



SMATV ILLEGAL?/ continued from page 15

ming **if given the opportunity**, i.e., if the programmers were to encrypt their signals **and license** these owners. Voluntary offers to pay for the programming has always been arrogantly refused by HBO et al.

Another telling and emotional argument was that the entire satellite industry from which the movie companies, broadcasters, cable companies and programmers derived great benefit was made possible by the enormous investment in the Space Program; an investment funded by the tax dollars of **all** Americans. Therefore, **all Americans** should derive the benefit of this technology. These arguments clearly prevailed and the Satellite Viewing Rights Act passed and was signed into law.

So, we should assume that the intent of the drafters of the legislation was to allow all Americans to watch satellite programming in their own homes, but this does not appear to be the result. Let us take the hypothetical case of two families living in a remote area of Arizona who can receive almost no watchable television on VHF or UHF and who, clearly, will never have access to cable television. The first family, named Goldwater, has a perfect location for a satellite antenna with a clear view of the entire geostationary orbital belt. The second family, named Gore, whose home is within 100 feet of the Goldwater's has no such spot on their property from which they can get an unobstructed view of the satellite belt. The Gores and the Goldwaters agree to jointly buy a satellite system, install it on the Goldwater's property, and each receive signals from it into their individually owned receivers. Are they doing something illegal? Many attorneys think that they are in view of the new law. If so, was this the intention of the drafters of the bill? Aren't the Gores being disenfranchised because of an accident of location? I grant that I have heavily loaded my example to favor my thesis because if it is legal for the Goldwaters and the Gores to share a satellite system, then it is clearly legal for three, six, twelve or more families to do so. Let us go back to the legislative history of the Act: "Nor is it contemplated that an individual may redistribute programming received by his satellite equipment to the home or residences of his neighbors." I submit that the Goldwaters and the Gores are not engaged in redistribution and are therefore not guilty, nor would larger groups be guilty, of a crime.

Unfortunately, it may require long and costly legal battles to resolve these questions unless clear language can be substituted for the confusing language currently in the bill. In fact, it could even become more confusing if some of the premium service were to encrypt their signals. Now, presumably, with the acquisition of a **legal decoder** and the payment of a monthly fee to each of the encrypted services by both the Gores and the Goldwaters, they would be legal. **Or would they?** What about the programs which were **not encrypted** and therefore viewable on the shared system? They would have a legitimate complaint under the terms of the Act because they would not be paid nor could any mechanism exist for them to be paid.

Let me address myself to those programmers who have announced their intention to encrypt their signal such as HBO and Showtime. It would seem to me that it is in their vital interest to join with SPACE to make sure that this situation is changed. Let me give an example: A garden apartment complex consisting of 10 clusters of 12 apartments each in a location underserved by broadcast TV, unserved (and neverto-be-served) by cable TV, much too small to be economical for traditional SMATV but perfect for mini-SMATV systems with a small 5 foot mesh antenna serving each cluster and furnishing 24 channels of satellite programming to those of the 12 families in each cluster who desire it and are willing to pay a monthly fee to those programmers who encrypt their signal. I submit that there are hundreds of thousands of such situations with millions of potential subscribers who could be reached by this technology and this technology alone — which at this time appears to be illegal. Ironically, it would also appear to be illegal if a municipally franchised cable television company wanted to employ it within their franchised area. It would seem that it would be in the best interests of all; the American public, the programmers, the TVRO industry and the cable operators if this portion of the Act were to be amended

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CSD TEST: ARISTOCOM XL-12 TVRO ANTENNA

ANOTHER Mesh?

If you are a faithful viewer for the BORESIGHT program (*) each week, you have just been exposed to several weeks of a special report dealing with 'mesh antenna design.' To put together that report for BORESIGHT, CSD installed a Genesis 10 foot mesh antenna in Fort Lauderdale and an AristoCom XL-12 antenna in the Turks and Caicos Islands. We reported



SEE US AT SAT EXPO BOOTH - 1020-1032



WORKING INSIDE to outside, Chastain (left) and Sipple start mesh installation; yes, that is 'the ocean' just to the

on the assembly and apparent performance of the Genesis antenna in CSD for March 1st.

The AristoCom XL-12 is, as the model number suggests, a 12 foot dish. At the present time this and a 10-foot are the only size antennas offered by Aristocrat Products, Inc. (**). The XL-12, like the Genesis, is all aluminum in construction and if you are a dealer who is concerned about steel parts rusting and decaying because of corrosives in the air, the allaluminum (all-American!) approach to antennas should be of interest.

The location chosen for the XL-12 was purposefully selected to force premature failure of the antenna. The site is directly on an oceanfront beach, perhaps 100 feet from the surf, and salt spray from the ocean is constantly in the air surrounding the antenna. During periodic storms that will sweep into the island of Grand Turk, this antenna will be directly coated with salt water several times per year.

Aristocom's Sonny Chastain and Tommy Sipple came to the Turks and Caicos to participate with us in the antenna's assembly and to assist us in preparing the video report for

Our interest in all aluminum, mesh style antennas, is deeply rooted. With perhaps two dozen mesh style antennas now installed and operational in our 'test bed' within the Turks and Caicos Islands, we have now had between three and four years of experience with several of the more popular brand antennas offered in the field. Some have exhibited outright structural failure (example: two early-version Hero 20 foot mesh surface antennas fell apart in less than 12 months; metal fatigue) while others have developed significant amounts of rusting (example: an early version Paraclipse dish with questionable powder coating).

To date the one model and brand of antenna which has held up the best, when constantly buffeted by 'tradewinds' and constantly being coated with a salty air environment, has been the Conifer 12 foot system. There is a clue here since Conifer is essentially 'all aluminum.

Wind and corrosion are two ongoing enemies of antennas.



STABILIZER BAR (nearest top of picture) joins outer rim of antenna together to re-enforce the inner 'T-bar' assemb-

You can learn something about the manufacturer's 'level of confidence' with his product by reading his warranty. Aristo-Com, for example, states "This is to certify one AristoCom antenna is warranted to be free from defects in materials and workmanship for four (4) years from date of registration." Presently, manufacturer warranties for antennas run the range from none at all to five years although most will exclude paint or parts (such as screw jacks) which are not of the antenna manufacturer's creation.

The XL-12 consists of mesh panels plus an (aluminum) hub plus the rib support structures, and hardware. There is also a buttonhook, front loading but rear adjustable feed support. The antenna is presently shipped in a single heavy cardboard carton with the mesh packed on top and the support materials packed below.

Assembly begins by attaching the (8) truss arms to the hub. The very adequate instruction manual suggests a method utilizing the shipping carton as a 'table' for the hub during this part of the assembly procedure; using a pocket knife, slots are cut into the top of the shipping carton so that the hub's 'ears' will stick down into the carton. This anchors the hub in place so that the truss members can then be bolted to the hub. The truss arms or 'wings' are pre-assembled and of

^{*/} BORESIGHT, Thursdays 9 PM, SATCOM F4, TR20.

^{**/} Aristocrat Products, P.O. Box 637, Simpsonville, S.C. 29681; 803/967-4413.

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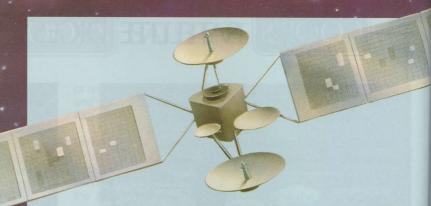
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THE LUXOR 9534 ANTENNA ACTUATOR

Now you can have fully automatic satellite selection a your command by remote control. The location of 30 different satellites can be precisely defined and programmed for automatic recall at the touch of a button The unit is design coordinated to interface with the Luxor 9550 Satellite Receiver.

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Once programmed, the Luxor Receiver and Actuator can be completely controlled from your armchair by this compact (IR) Infrared remote control. No wires necessary. You have automatic recall of up to 24 tele channels from up to 30 different satellites.

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The Luxor lautomatic footing murremote commemory; Foincluding sinoise reduction wide band modulator connection See for you Luxor is on top selling.

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The Luxor Mark 2 gives you more automatic features than systems costing much more! Individual remote control; Programmable memory; Four audio systems including stereo and Dolby noise reduction; Narrow/Wide band audio. A built-in modulator means easy connection to any TV set. See for yourself why Luxor is one of America's



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Add a Luxor Actuator Control Unit and the entire system, antenna and receiver, can be controlled with a hand-held IR Remote Commander.

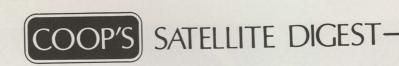


top selling brands. Luxor.

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PAGE 24/CSD/4-85



ARISTOCOM XL-12/ continued from page 19

course are all-aluminum.

The 8 truss arms or ribs are held in place when the antenna is completed with something called 'T bars'; a cross-sectional piece which attaches from truss/rib to truss/rib so that the entire framework becomes rigid. The hardware here is zinc plated 3/4" hex head bolts. There are 5 layers or levels of 'T bars' on the antenna which works out to one horizontal support approximately every foot from the center to the outer circumference of the antenna.

Now you are ready to install 8 'stabilizer bars,' which fit between the truss/ribs and the outermost T bars. Up to this point, if you are not doing this for the first time and are therefore on your own 'learning curve,' you have probably used up about 30/35 minutes time.

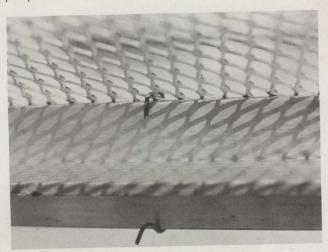
MESH Installation

As we have recently seen on Boresight, and here in CSD, there are several 'methods' available to attach the mesh reflective surface to the truss/rib/T bar support network. Paraclipse utilizes a pair of steel-clip-types which require the installer to use a reasonably heavy pair of pliers to secure the clips. Genesis utilizes a softer all-aluminum clip which can actually be bent into position with finger pressure; no pliers are necessary and far less effort is required to secure the mesh to the framework.

AristoCom has elected to utilize a pre-formed clip which for the most part requires no tools (i.e. no pliers) to install. The clip is formed so that it secures through the mesh and around the rib or T bar supports. It truly 'clips into position' with a distinctive 'snap' as the two formed ends open under gentle downward pressure and then form or fold around the framework piece to lock into place.

The net result is that the mesh surface attaches more rapidly than those which require pliers to bend into shape, and as a practical matter the installer is more apt to use an adequate number of clips to secure the mesh rather than 'short-cutting' the exercise because he has tired of battling each clip with pliers.

There is an exception to the 'no tool' statement. The mesh is laid onto the truss/rib/T-bar framework in two pieces per panel section. Recall that we have eight truss ribs and



PREFORMED CLIPS 'snap' into place around framework to insure that the mesh adheres to the framework and follows the parabolic curve accurately.



ALL ALUMINUM mount and stand (concrete buried ground post is steel) is clean of line and easy to handle.

therefore we have eight separate 'segments' to the mesh surfacing. Within each segment we have a section of pre-cut mesh which begins at the hub center section and flows outward to the third T bar. Then we have a section segment, for each panel section, which completes the mesh 'run' from the third T bar location to the outer circumference of the antenna. AristoCom has elected, as have most of the mesh antenna suppliers, to divide the panel segments into a pair of sections to make shipping of the mesh more practical. There is another sound reason for dividing the mesh into two sections per panel segment; surface conformity. As we discussed at some length in CSD for March 01, the surface accuracy of the reflector surface is the ultimate 'measure' of the anennas performance. There are two factors which affect the accuracy of the surface versus the idealized parabolic curve:

 The accuracy of the framework to create a parabolic shape, and,

2) The ability of the **mesh surface** to attach to and follow that 'parabolic shape.'

The framework below the mesh should assemble 'precisely' (i.e. as individual parts join together to form the framework, there should be no 'sloppiness' as parts align to fit together, nor should parts have to be forced together under pressure). Most new antenna designs go through a period of 'tooling adjustment' where for the first few hundred or fer

PLIERS HE 'T-bar.'

thousand a minutely adj antenna sur are thousan are that the

The mes for March 0 only go toge impossible) precision fra course quite no matter he The dealer, much of a hu





PLIERS HERE/ as overlapping mesh clips go on at third 'T-bar.

thousand antennas, the tooling that creates the parts is minutely adjusted to improve the precision fit of the parts. If an antenna survives in the marketplace to the point where there are thousands rather than hundreds out in the field, chances are that the precision will be there.

The mesh attachment to the surface, as discussed in CSD for March 01, is another matter. A precision framework can only go together, properly, one way so it is difficult (perhaps impossible) for the installing dealer to 'screw it up' (a nonprecision framework, for a product that has not 'matured,' is of course guite another matter!). But the mesh can go on wrong, no matter how well thought out and executed the framework. The dealer, by accident or mistake or because he is in too much of a hurry, can screw up the mesh and of course with that

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error the antenna as a system no longer will perform as it was intended

One of the ways that a dealer can make a mistake is to not properly secure the mesh to the framework; either in too few attachment spots or by getting the mesh into 'bubbles' because it is not properly smoothed out on the framework prior to the attachment process.

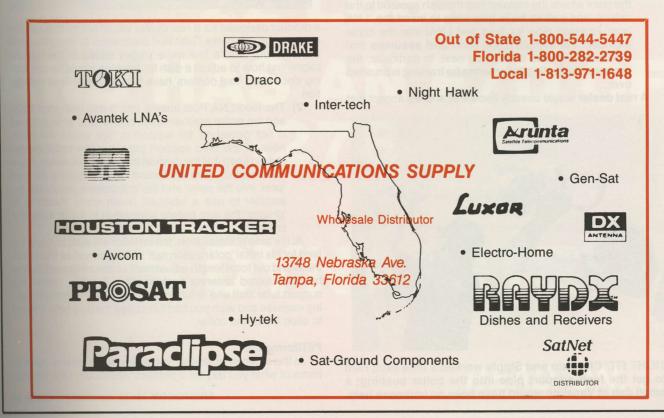
Chastain believes that by providing the dealer with preformed clips that 'snap' into place, around the framework, there is less opportunity for the installer to make mistakes. Working as a team with Tommy Sipple, the pair took around 40 minutes to place all of the mesh on the framework completing the 12 foot dish

That exception to 'no tools'?

Where the first piece of mesh overlays with the second piece (i.e. over the third-out 'T-bar') we have an opportunity to use a standard pair of pliers to secure the clips. When the clips have to work their way through a double thickness of mesh, at the overlapping 'joint,' it does take slightly more finger pressure to secure the clips than most people have available. Working one man 'up' (on top) and one man 'down' (below the surface), the mesh surfacing moves right along about as fast as two people care to move.

THE Mount

The installation manual for the XL-12 is one of the more thorough we have seen for a mesh surfaced dish. The manual takes you through a series of 27 photographic illustrations which clearly show how each part attaches or installs. In addition to that, there is a dish-assembly 'exploded drawing' which identifies every part in the antenna, by number, and shows the actual part to part relationship. If you have ever had to assemble a Sears Roebuck outdoor 'appliance' and could follow their step by step instructions, you'd have no problem with the XL-12 instructions.



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QUICK REFERENCE SPECS

Manufacturer: Aristocrat Products, Inc., P.O. Box 637, Simpsonville,

SC 29681; 803/967-4413 Size: 12 foot (Model XL-12) Feed: Prime Focus, .375 f/D (54") Weight: Under 300 pounds with mount

Price: \$725 dealer net through distributors (price varies with distri-

butor)

Gain: CSD estimates 42 dB mid-band Assembly Time: Two men, under 2 hours

Construction: All Aluminum

Assembly Manual: Well above average for serious installing dealer

use

Overall Rating: In top 10% of all antennas tested to date.

The mount is a 4" square aluminum 'tube' which slides over a four foot length of 3 inch OD pipe (supplied by Aristo-Com). The pipe sits in concrete in the traditional fashion and 20 inches are left above ground. All of the hardware packages are marked ('A' through 'F') and you open and use only one package at a time, thereby simplifying the search for specific sizes of washers and nuts. The instructions tell you which bag to open for which steps.

The antenna lifts onto the mount and secures; two men could do this with no particular strain. The mount allows you to adjust the declination offset (a chart is provided for latitudes from 10 to 55 degrees) for proper tracking. The feed installs through a solid hub plate and extends to the rear of the hub where the installer can slide the feed in and out to fine tune the recommended 54 inch focal length.

SHORTcomings

In installing the XL-12 we saw few areas for improvement in either the product or the instructions. These, however, did catch our attention:

1) The manual is excellent as far as it goes; but at about the point where the installer has the dish secured to the mount, and just as he is preparing to insert the 'LNA post' (support pipe for feed and LNA) into the collar provided, the manual stops short and assumes that the installer knows what to do next. In particular, the process of adjusting the antenna for tracking is brushed over.

A real dealer would already know this and we accept that



TIGHT FIT/ Chastain and Sipple worked a little extra hard to get the feed support pipe into the collar bushing; a small dab of Vaseline would have been an immense help.



a product designed for a real dealer would not try to teach the entire theory of Clarke Orbit Belt mechanics to every buyer of the antenna. Still, a few more pages added to the manual explaining how to adjust a dish for tracking would be comforting since even 'real dealers' have to have a first-time installation.

2) The feed/LNA Post inserts into a well designed collar and the entire mechanism is strong; and while the feed is not 'guyed off' for support in high winds, the stoutness of the feed support pipe and the collar design should keep it at the desired focal point. However, there is no excess room whatsoever when inserting the feed 'post' into the collar and the instructions should tell the installer to use a lubricant (even some Vaseline) to 'grease' the arm before attempting to insert it into the collar.

At the time of installation, the installer will want to rotate the feed for his initial 'polarization null' setting as well as fine tweek the in and out focal length adjustment to assure himself that he has maximized antenna performance. Frankly, unless the support tube 'butt end' is lubricated, you'll fight with this tweaking exercise and wish you had lubricated the pipe before trying to slide it into the collar.

PERformance

In the antenna business, you pretty much receive value in terms of what you pay for a product. AristoCom sells through

ARISTOCOM XL-12/ continues on page 30

HERE'S THE NEW

WINEGARD® MINI-CEPTOR™

A 6-FT. DISH
THAT WEIGHS ONLY
22 LBS.

AND HAS AN F/D OF
.278

IT'S DYNAMITE!

READ ON. . .



WINEGARD® MINI-CEPTOR™

REACHES NEW HEIGHTS IN 6-FT. TECHNOLOGY

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Sure you've had good success selling 8, 10 or 12-foot satellite antennas. Sure you've heard about six-foot models. And you might be leery. Maybe even convinced (without ever trying one) that reception quality isn't good enough to satisfy your customers. Let's set the record straight.

Does a six-footer work as well as a "ten" on all satellites and on all transponders? The answer is no. Is it true that some six-footers work better than others? Yes. Like the Winegard Mini-Ceptor with an unbelievable F/D of .278.



Winegard's Mini-Ceptor™ is designed and manufactured to the same precision standards as our 10-ft. perforated aluminum "deep dish."

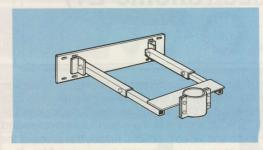
Model RF-1000 Patent Pending

In test after test, in all parts of the country, the Winegard Mini-Ceptor pulled in beautiful, clear pictures on most satellites and on 50 channels or more. Yes, there were minor sparklies on a few transponders, but good, watchable pictures nevertheless.

So what are we saying? How can you sell a sixfooter against a ten? The answer is, you don't.

The Winegard Mini-Ceptor has a niche all its own in the home satellite market.

- 1. Many folks would like satellite TV in their homes but simply don't want a big, obtrusive dish. The small Winegard Mini-Ceptor, with its perforated aluminum see-thru construction, is probably the least obtrusive and most aesthetically pleasing satellite antenna on the market today.
- 2. Other home owners simply don't have yard space for a large dish. The Winegard Mini-Ceptor solves this problem.
- 3. In some cases, you can't get a good "look angle" without installing the dish above roof height. The Mini-Ceptor also solves this problem. It can easily be mounted on a ground-up pole mount (see photo). Its small size and light weight (22 lbs.) mean easy installation and far less wind loading than a larger antenna.
- 4. There are plenty of consumers out there who will be amazed and pleased with 50 or so satellite channels with good, watchable pictures from a small dish. All they need is a live demonstration.



Adjustable Winegard bracket attaches to roof edge or side of house, allowing easy "ground-up" mounting of Mini-Ceptor on standard 2-1/2-inch pipe.

So if you've had hang-ups about trying - and selling - six-foot dishes, try the new Winegard Mini-Ceptor. And, if you're already selling a sixfooter, give Winegard's a test. It will soon become an important, profitable part of your product line.

FOR FULL DETAILS AND SPECIFICATIONS, WRITE:



PAGE 30/CSD/4-85



ARISTOCOM XL-12/ continued from page 26

distributors, and in the southeastern portion of the United States the firm has a substantial foothold on the 12 foot marketplace.

AristoCom began building antennas after Sonny Chastain attended the Omaha industry trade show in the summer of 1981 and from a previous history of fabricating commercial and industrial goods out of metal, they had the knowledge and expertise to engineer their product for both value and performance. We expected the antenna to work well, when we participated in its assembly, and we were not disappointed.

We elected to install the XL-12 on a beachfront location, as noted, primarily because we were looking for a 'guinea pig' to measure the short and long term endurance ability of an **all-aluminum antenna** product in such a severe environment. Away from the traditional WIV antenna test grounds we could only calculate (as opposed to measure) the antenna's performance.

The XL-12 has clean patterns on both sides of the dish and would have no difficulty with birds spaced as close as 2 degrees; even when the birds were of the same polarization. For gain, it would probably be impossible to tell the difference

between it and other high quality 12 footers (such as the Conifer or Paraclipse) if all were being tested side by side with the same identical electronics.

Perhaps the most important part of the XL-12 'story' is that here is a quality antenna product which contains no unpleasant surprises as the installing dealer puts it together. All of the pieces fit, precisely, and the mesh attaches (using the snap on clips) with an ease that some other competitive models lack. By not being 'badly surprised' by the unexpected, the antenna proves itself as a serious antenna for serious dealers who want to be able to open a carton and get on with their work.

Over the next twelve months we will be watching the deterioration of this antenna on the beachfront and every now and again we'll report to you what is happening to the all-aluminum parts. As Sonny Chastain himself said on a recent BORESIGHT segment, "Any metal, including aluminum, will deteriorate in this type of tough environment. However, by being all aluminum, the deterioration will be much slower and as the antenna deteriorates, it will not lose performance." If this proves to be the case, antenna users in 'rough environments' should be pleased to have a new 'tool' in their arsenal.

CURING TI WITH A BETTER RECEIVER (Electrohome E1)

For most Canadians, Electrohome, was color television and high fidelity. Back in the era when an FM radio was only found in a long wooden cabinet and we called these pieces of furniture "hifi," Electrohome was the leader for innovative and high quality audio and video products. In fact, this is one of the oldest surviving consumer electronics companies. More than 75 years ago, Electrohome's founder, Arthur Pollock invented the "hornless phonograph." This was an era of wind-up "victrolas," pre-tubes, pre-transistors, and pre-arsenide LNA's.

Electrohome moved into car radios when North Americans began their love affair with automobiles. They progressed into Black and White television in the late '40's and '50's, then into color TV. But by the late '60's off-shore competitors began to nibble, then take bites out of the North American consumer electronics industry. As Sony, Pioneer, Panasonic, etc., became household names, Electrohome changed its product lines. It cashed in on the video arcade mania and became a

high-tech-user's review of the **Electrohome E1** receiver. We wanted him to approach his target unit **as a user** with a high-tech background, **not as** a laboratory tearing the unit apart for every mis-marked resistor on the circuit board. He obliged and in the process discovered a receiver which laughs at TI! This, then, is in Lewis's opinion 'the-best-of-Canada' as we turn the corner into the 1985 selling season. Significantly, Lewis reports "this receiver is being private-labeled for Channel Master in the United States."

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ture; an 'original Canadian product.' Lewis came back with this

CSD turned Canadian Bureau Chief **Mark L. Lewis** loose to find the most innovative home TVRO receiver system he could locate in Canada. Our criteria; it had to be of Canadian design and manufac-

major supplier of the internal workings for video arcade games. They also moved into videotex, with two-way video systems, and became involved in Ku-band; very early!

One of the first Ku-band systems which I saw was in the Electrohome plant in Kitchener, Ontario. In a high-security area, there stood a spun stainless steel dish, manufactured locally. This was about 7 years ago, and the only Ku-band satellite in orbit at the time was the Hermes (true DBS) satellite which had 175 watt travelling wave tubes on board. Electrohome made the receivers for those systems. The systems were so good that they are still out in the field working today, to receive NBC, and various Canadian Ku-band services.

In the early 1980's Electrohome continued to develop satellite TVROs. They developed and produced the early receivers marketed by General Instrument. At the time, the receivers were quite advanced, with LED channel readout, infra-red remote, and many other features. During 1983 and early 1984, Electrohome was involved in a joint venture with a company called Gensat(*) to develop and market a block-downconversion receiver. The two companies found that their goals and perceptions of the market were different, so they parted in early 1984. Meanwhile, Electrohome continued to develop a series of new and different satellite receivers. Noting a void in "broadcast quality" and low-cost SMATV recei-

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(Canadian Bureau Chief)
2 Braemore Gardens
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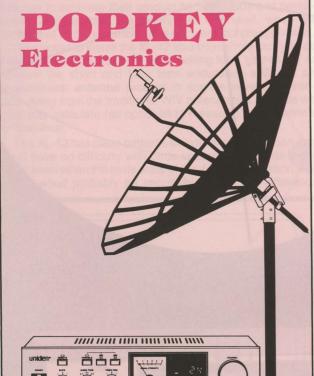
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CST 8:00 TO 5:00 - DEALERS ONLY - vers, Electrohome designed a line of frequency synthesized rack-mounted receivers for the SMATV and cable industry which, incidentally, could be mated to virtually any UHF block downconverter. Now, in the mid-1980's Electrohome has become one of the major North American producers of "top-end" TVRO receivers, and the leader in low-cost SMATV and CATV receivers.

The technological innovation of the industrial-quality line of receivers was transferred to the E-1. In other words, they put signal processing technology of a commercial-grade receiver into a consumer product. To understand the development of the E-1, you have to understand Electrohome's engineering capability. The company is no longer involved in manufacturing consumer products **except for TVRO products**. Nevertheless they manufacture industrial video monitors, videotex systems, and their assembly plant does custom contract work for the military, and the computer and telephone switching industries. In other words, this is a high-tech company, with diversified engineering disciplines.

For the E-1 receiver, Electrohome assembled a project team which included software engineers from its computer and informatics division (there is a lot of computer logic built into this receiver). They also used video engineers, who are involved in commercial-grade monitors. More than 8 manyears was spent in the development of the E-1 although all of the development was highly concentrated over a few months. A lot of Electrohome's staff live in a rural part of Southern Ontario, so many have TVRO's at home. This meant that their development team had real experience with satellite television, and it shows in the E-1 receiver. A lot of common-sense user-friendliness went into the development of the

receiver

Roger Gratl, Director of Marketing told us: "What we didn't do, is set out to re-invent the wheel. We didn't design a new block downconverter, because there are so many good products on the market which in themselves are the result of a lot of R&D money." Roger told CSD that the E-1 was designed so that it can be used with a variety of block downconverters ("BDC's") on the market today. If there are breakthroughs in better quality or pricing for block downconverters, the E-1 can be mated with other products. Furthermore, Roger Gratl said that Electrohome wanted to avoid the dilemma which afflicts many North American companies which plunged into development and production of their own LNA's. LNA's have been subject to so much improvement, innovation and price swings, that a lot of North American companies have been stuck with a large inventory of 120 and 100 degree LNA's in a market which is rapidly changing. Electohome believes that BDC's will be subject to similar improvements and price swings.

We had the opportunity to test an early production model. First, a little about the physical layout of the receiver itself. It is styled in the latest high-tech and is designed to fit into any home video component system. The receiver is only 2 inches high, and will fit into bookshelves or wall units. Key programming controls are mounted on top of the receiver, with multifunction LED read-outs. The placement of output jacks is excellent, with separate outputs for subcarriers, and scrambling decoders. There are also RF and video outputs, as well as RCA jacks for stereo audio. Also, there is a loop-through of the I.F. stage for insertion of I.F. (TI) filters, and bandpass filters in

*/See CSD/2, February 15 for a review of Gensat BDC equipment.

ELECTROHOME E-1/ continues on page 41

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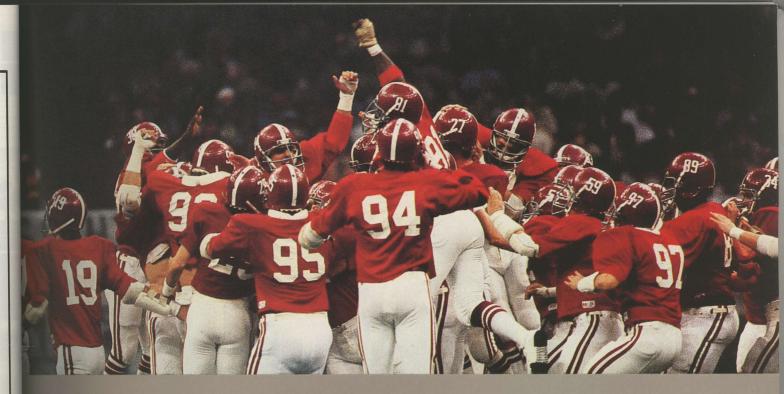
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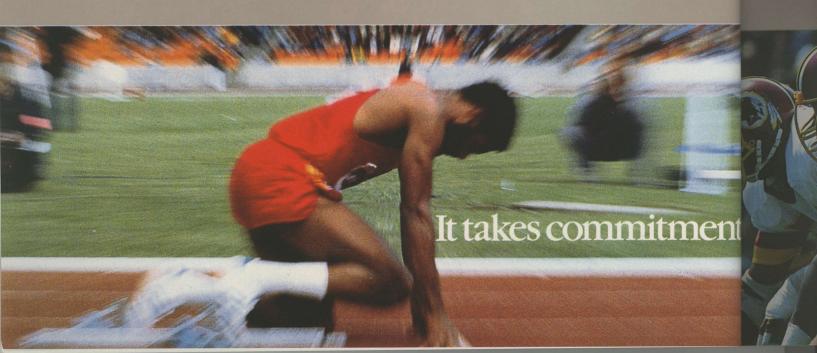
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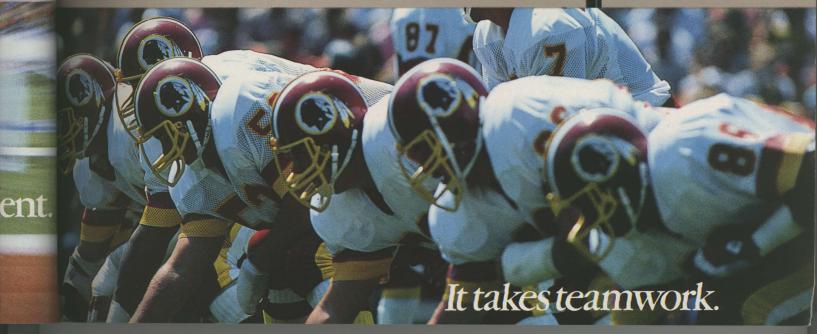




opto-interrupt servo system ensures extremely accurate antenna positioning. Designed for use with Uniden's UST-710 and UST-730 controllers, and UST-7000 receiver.

superior performance. Clean, un-obtrusive design. No welds, UPS shippable, and compatible with 2° satellite spacing.





Satellite Receivers

Uniden satellite receivers have fast gained a reputation for delivering the highest standards of performance and quality at affordable prices. They all feature sleek, contemporary styling and are "human engineered" for maximum convenience and ease of use. Uniden's block downconversion systems are ideal for multireceiver installations, which represent an excellent source of highly profitable step-up and repeat sales. And unlike less sophisticated units with 450-950 MHz IF, Uniden's full line of block downconversion receivers uses an IF of 950-1450 MHz for superior stability, cleaner reception, and greater reliability.

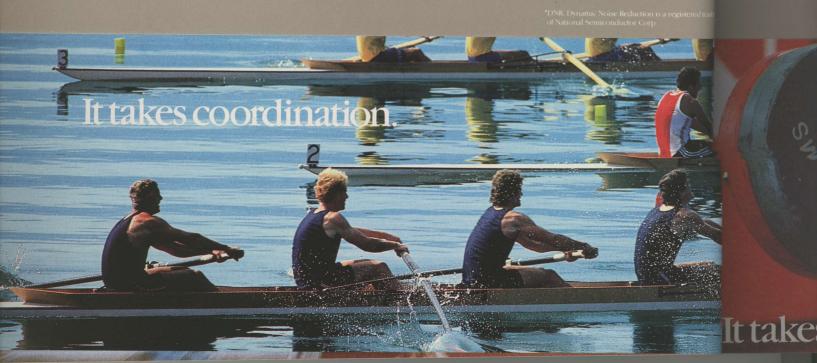


UST-7000

A top-of-the-line block downconversion receiver combining the most sophisticated engineering with the most advanced and desir able convenience features. Built-in programmable antenna controller eliminates the need for a separate "box." (Receiver package includes UST-770 Antenna Actuator.)

Easy-to-read LED displays for of-day, satellite type/number, a tenna position, left and right a channel frequencies, and sate channel. Full-function hand-he wireless remote control store hideaway front panel compart and permits total "armchair" of tion of receiver. Matrix or discrete sound with DNR* (Dyn Noise Reduction).

dependable, reciced block down erformance and privenience feature e UST-7000. Sofur channel select ow/fast channel and LED channel ent hand-held wontrol. Full stere noice of matrix or mats.





UST-6000

A dependable, reliable, midpriced block downconversion receiver offering the high performance and many of the convenience features found on the UST-7000. Soft-touch controls for channel selection and slow/fast channel scan. Easy-toread LED channel display. Convenient hand-held wireless remote control. Full stereo sound with choice of matrix or discrete formats.

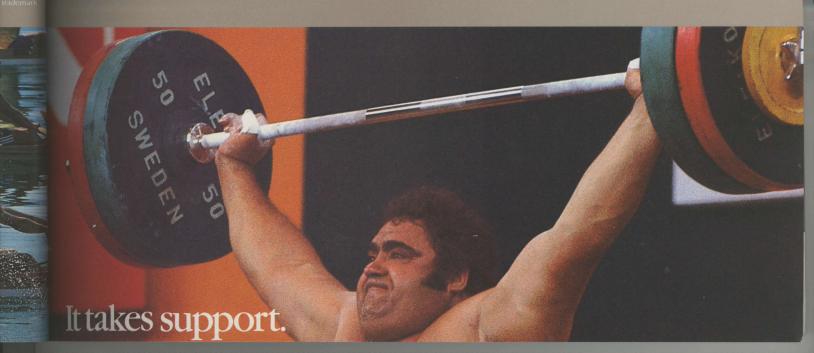
UST-5000

A simple, yet sophisticated, block downconversion receiver. Uniden quality, technology, and styling at an economical price. Allows you to offer affordable, practical multi-receiver packages to your customers. Soft-touch controls for channel selection and slow/fast channel scan. Easy-to-read LED channel display. Skew and audio tune controls.

UST-1000

Already a top seller in the field, this high-performance single conversion receiver makes it possible to design low-cost, entry-level systems for the budget-conscious customer. Features include audio/video fine-tuning, built-in polarity selector, skew control, channel scan, illuminated channel display, and detent tuning.

uniden



System Components

Whether it's a highly affordable that Uniden receivers and antenna systems perform at their best.

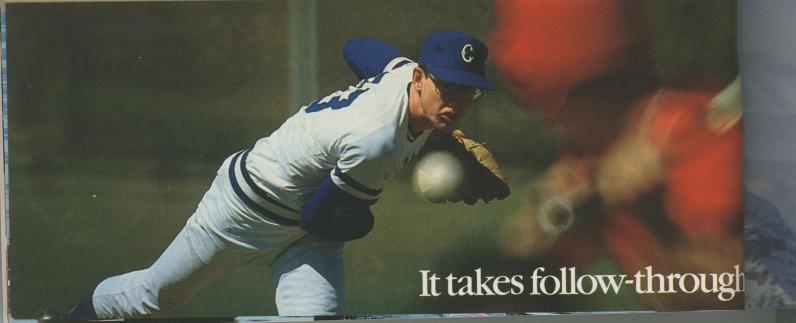




A superior-quality LNA, provide high gain and low distortion. E sures brilliant, noise-free pictu







System Configurations

Uniden satellite television components allow you to custom-tailor a system to your customer's exact needs. Here are two of many possible configurations.

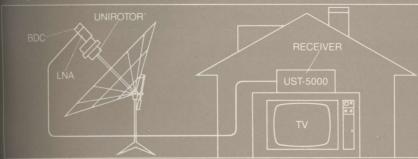
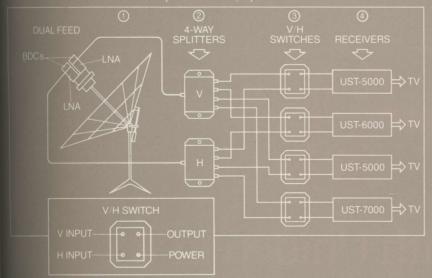


Diagram I—Single-Receiver Installation: Signal is amplified by the LNA and converted to intermediate frequency by the block downconverter (BDC). Converted signal is cabled to the receiver inside the home.

Diagram II—Four-Receiver Installation: 1. Vertical and horizontal polarity signals are amplified and converted separately by two LNAs and two block downconverters for by two LNBs). 2. Converted vertical and horizontal signals are fed to two 4-way splitters. 3. Signals from the splitters are fed to four V/H switches. All 12 vertical and 12 horizontal channels are now available at each of the four V/H switches and receivers. 4. User at each receiver can independently select any of the 24 satellite channels. (A two receiver installation would require two 2-way splitters and two V/H switches.)



Dealer Support

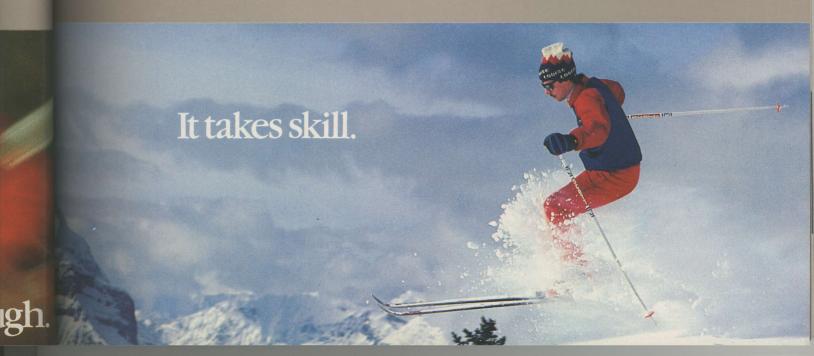
It takes more than great products alone to be a winner. That's why the Uniden satellite television line is backed by the most complete marketing support package in the

Uniden deale support starts with an impressive in-store kit of merchandising aids and point-of-purchase materials. It includes a counter card.

counter card, window and door decals, a 2' × 5' banner, and a full set of color brochures, spec sheets, posters, and mailers. Special dealer plaques, lighted signs, and product display cases are also

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UST-900

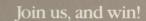
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ELECTROHOME E-1/ continued from page 32

the event that the receiver may be used for Ku-band reception. In other words, this is a Ku-band-ready, compatible with the right Ku-band block downconverter. Inside, the circuit boards are well-secured, and well-placed. In spite of all of the technology contained within the E-1, there is a fair amount of room left within the receiver.

There is an infrared keypad for remote tuning of the frequency synthesized receiver and a built-in keypad on the top of the unit for those times late at night when you are groping around in the dark. The receiver contains microcomputer logic, and you can program the receiver by means of the built-in keypad. The built-in keypad also includes additional function keys for programming the computer technology contained within the receiver.

The downconverter can be hung from the TVRO mount. It is weatherproof, and uses only one RG-11 or RG-6 cable between the downconverter and the receiver (motor control and polarity control require separate wires). The cable connections are well recessed under a bell-like hood, for extra protection against the elements. In our case we chose a .412 cable. You can run up to 300 feet of polyfoam RG-6 cable without the need to amplify the converted signal.

The operation of the receiver is very simple. The infra-red numeric keypad allows direct tuning of satellite channels. You can also step through the channels, up or down. There is audio muting, plus volume control, and fine tuning. The wireless keypad can also control the dish actuator. A red LED displays the channel which has been selected as well as programming functions. There are also LEDs for various audio configurations. From the keypad, you can also access a clock. Using the built-in keypad, more functions are available. You can program the audio subcarriers for each transponder of each satellite. The receiver can tune mono, discrete stereo and matrix stereo signals. More on the audio circuitry later.

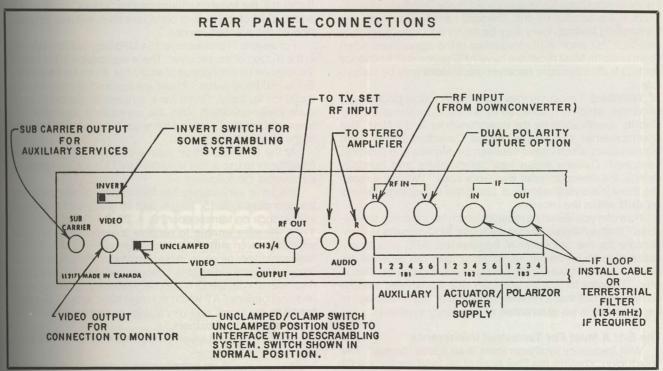
You can also program and control an antenna actuator

through the receiver. A control box/power supply for the actuator is provided as standard equipment (one can retro-fit virtually all actuators on the market to work with this receiver). Along with satellite position, you can program the polarity skew for each channel of each satellite, as well as the fine tuning characteristics for each channel on each satellite. In other words, the E-1 has memory capacity for the audio, polarity and fine-tuning characteristics for each transponder on each satellite, adding up to thousands of memorized functions. The microprocessor controls more functions than most receivers.

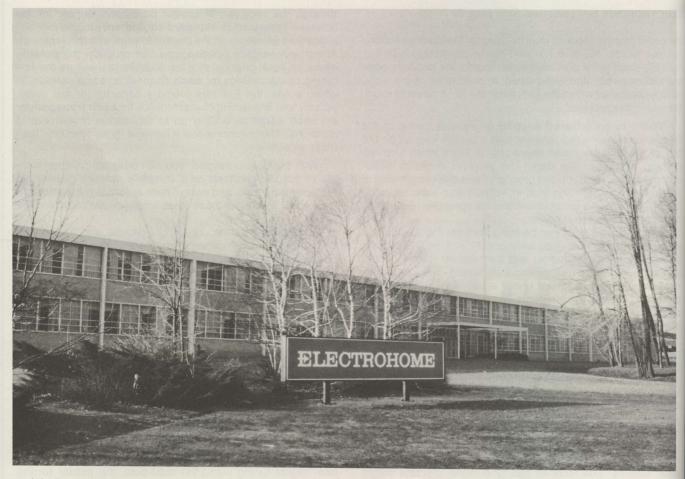
With the built-in keypad, you can program parental lockout of specific channels or a complete satellite position, to protect young eyes and ears. There is also a programmable "fast scan" feature for those times when you are searching the

LNA power is fed through the RG-6 cable, and the LNA can be turned off or left on when the receiver is shut down. During our test, we put the Electrohome receiver through gruelling paces. We ran it 24 hours a day, for more than 3 months. We connected outboard audio processors, videotape recorders, and signal descramblers to the various outputs. We also used audio audiophile amplifiers. The receiver passed with flying colors. We found it to be highly user friendly, and dependable.

We called Roger Gratl, and travelled to Electrohome for an all-afternoon session, where we reviewed all aspects of the receiver, to find out what makes it "tick." Our first question concerned terrestrial interference. The E-1 had been able to tune transponders afflicted by strong TI, without TI filters where other receivers had not functioned without TI filtering. Gratl confirmed that the reason why the receiver worked on channels afflicted with TI was true digital frequency synthesis. He said that is the most commonly misunderstood aspect of receiver technology today. While many receivers might "eimulate" digital tuning with LED read-outs, the actual tuning system is not frequency synthesized. At this point Gratl brought in Alan Lodberg, one of the design team engineers to



CF



explain the technology.

With true frequency synthesis the receiver does not rely on the incoming signal for frequency accuracy. Although all oscillators in the satellite up-link, onboard satellite receivers, and transmitting transponders **may be** highly accurate, there may also be a 'net error' in the frequency of the signal transmitted down to earth. Most receivers have AFC (automatic frequency control) built in because **receiver oscillators** may be inaccurate.

With the E-1 receiver, they use a highly stable block down-converter, which is unaffected by temperature variation. The stability specification for the downconverter is ± 2 MHz. The downconverter survived a rugged Canadian Winter, with temperatures which varied between 54 degrees and sub-zero Farenheit. Despite these vast temperature and humidity swings, the downconverter was "rock solid." Within the receiver, there is a crystal reference. Using this technology, there is **no drift** within the receiver.

How can you identify a receiver which is frequency synthesized? **Non**-synthesized receivers **use AFC circuits** to compensate for the ambiguity of frequencies. AFC circuits are susceptible to terrestrial interference, and the receiver will literally "swing" towards the strong interfering carrier. That is why TI seems to pulsate and over-ride the wanted satellite carrier. The fact that a receiver may give a "digital display" of the channels is **no guarantee** of frequency synthesis.

The E-1/ A Must For Terrestrial Interference

With frequency synthesis there is an added "bonus." The "fine tuning" controls the frequency of the local oscillator (LO)

in the receiver, **not the frequency** of the video signal. Therefore the receiver does not "look" at the terrestrial interference. Better still, **the local oscillator can be "offset**" to place the TI on the **skirt** of the built-in bandpass filter, **without degradation of the wanted carrier.**

For severe TI problems, a 134 MHz trap can be connected in the IF loop of the receiver. There is provision at the back of the receiver for connection of an IF filter. As we said earlier, the E-1 is "Ku-band ready." There are various transmission standards for Ku-band. Some have a narrower bandwidth or require lower deviation. With the appropriate downconverter, one could use the E-1 with a narrower band-pass filter inserted at the IF loop-through point.

At the time this article was written, we did not have the opportunity to use a 134 MHz filter for TI, but in our testing we discovered the following:

We have very severe Ma Bell terrestrial interference on transponders 7, 8, 15, 16, 19, and 20 with lesser amounts of interference on transponders 3, 4, 23, 24. On a Dexel DXP-1102, we were **unable to receive transponder 8 on most satellites**, even **with** TI filters inserted at the 70 MHz IF. On a new prototype receiver (from another manufacturer) which featured "digital tuning" the TI would "pull" the AFC toward the microwave. With the E-1, we could receive a degraded signal on transponders 7 & 8 which are most affected by TI. **But once tuned in**, the signal was very stable, and we were able to tune in narrow band subcarriers.

One other aspect which is very important is the fact that the

ELECTROHOME E-1/ continues on page 44

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ELECTROHOME E-1/ continued from page 42

user can "program" the receiver for terrestrial interference. For example, transponder 8 on Satcom F3 was our worst transponder. The fine-tuning to minimize TI on F3 TR8 was significantly different than the fine tuning on F4 TR8, or with transponder 8 on satellites with opposite polarities; i.e. Galaxy or Westar (the polarization of microwave signals may be opposite to the polarization of some satellites). With the built-in computer logic we could tell the E-1 to tune F3 TR8, one way, and Galaxy 1 TR8, another way!

Think of it — the receiver will custom tune **each of 24 transponders**, on **each of 20** or more satellites, and **memorize** each of those hundreds of tuning characteristics! If a new terrestrial carrier should suddenly appear after the receiver is set, you can reprogram a specific transponder, or merely override the fine tuning setting using the remote control.

We put the receiver to the test: with the **other receivers**, when we optimized the video to lessen the TI, we lost the ability to tune subcarriers. Expressed another way, the E-1 will function with TI present where most receivers will not. We experienced severe microwave problems on TR15 of F3 on

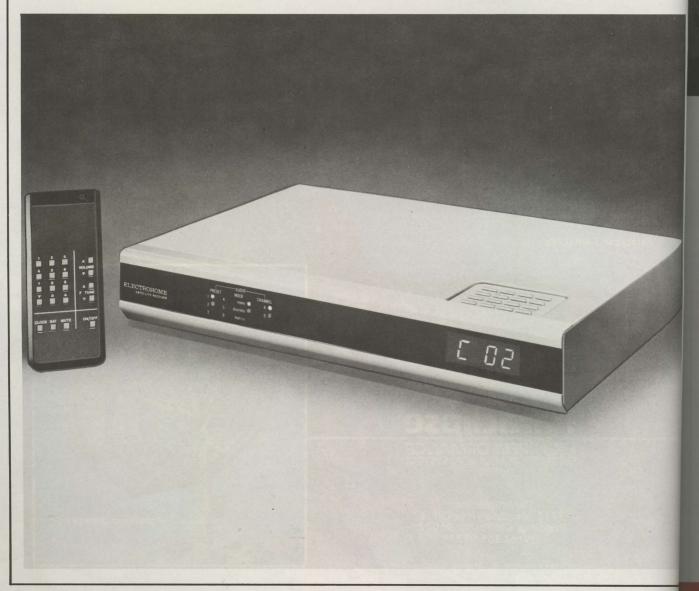
the Dexel receiver. **Even with a TI filter**, we had to disengage the AFC, and tune very carefully, **and suffer with a degraded picture**. On the E-1, we noticed a few "black" sparklies, but with fine tuning, the picture was fair.

The side-by-side comparison was significant, and remember, we did **not filter** the incoming TI with the E-1. For very severe TI, one could also filter the incoming 4 GHz signal just before the block downconverter. To be honest, the E-1 receiver **did not** solve **all** of our Terrestrial Microwave problems. Numerous transponders were still degraded by microwave. However, the performance of the E-1 with**out** TI filters was superior to receivers **with** filters.

We don't think that there are many instances where TI would be that severe. Engineer Alan Lodberg confirmed that their E-1 had worked well in downtown Montreal, near a large Ma Bell site, without the need of TI filters, where other receivers had failed. Seeing is believing, and we have witnessed the synthesized tuning first-hand.

PICTURE Quality

Picture quality is where a receiver lives or dies. We found



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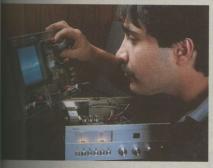


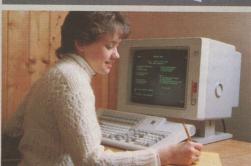














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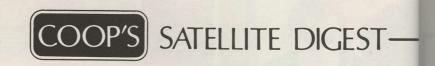
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that video quality was excellent on strong transponders. Clearly, the Electrohome outperformed other receivers in the areas of color saturation. We rarely had a saturated color, and the annoying buzzes which accompany saturation are **not present**. With rare exceptions, lines did not bleed. The people at Electrohome have spent a lot of time focusing on the video quality. Roger Gratl told us that Electrohome's decades of engineering TV monitors have impelled them to ensure that the video quality is present at both the RF outputs **and** video outputs. Because the E-1 is built upon the design criteria of the commercial grade SRM-36 receiver, the video processing in the E-1 is "commercial quality."

"We spec items in our video which some other designers don't even know about" Alan Lodberg told us.

The RF output provided very clear, clean signals, which produced excellent video recordings. Unfortunately, we didn't have a video monitor in order to do a comparison between RF out and video out. The likelihood is that the video fed to a monitor would be superior to the RF output. Electrohome uses a run of the mill modulator in the E-1. It is good, but the modulator in their commercial grade receiver was custom made, and better. Nevertheless, the modulator in the E-1 is the same one found in about 50% of TVRO receivers on the market today.

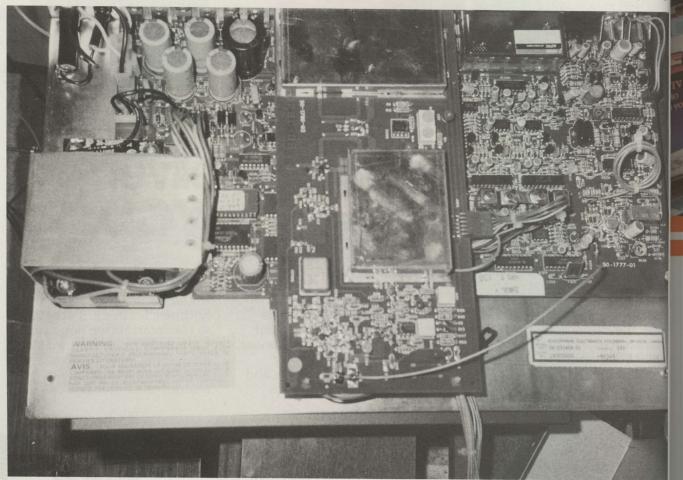
The receiver has unclamped and unfiltered video outputs and switchable video polarity. It also has a separate output for subcarrier tuners. This is a definite plus, as we live in an era when consumers may have both subcarrier equipment and video decoders. We had no problems decoding Oak Orion signals.

On the topic of receiver compatibility with the HBO scrambling system: Alan Lodberg confirmed that M/A Com, as of late January was still keeping receiver makers in the dark However, because the E-1 has better video processing specifications than most receivers, and commercial-grade video processing, it is more likely to be adaptable. Said Lodberg: "If our receiver fails to be compatible, virtually every other consumer receiver will fail too!"

The subcarrier output, was very clean, and very stable. We ran KKGO-FM Los Angeles (F4 TR17), for hundreds of hours. Although the transponder itself is weak, and the video signal is accompanied by superimposed telephone numbers, there was no "buzz" on the audio subcarriers. There was no apparent receiver drift.

AN AUDIOPHILE'S Receiver

The surprising "bonus" was the quality of the audio processing. The discrete stereo audio tunes narrow-band subcarriers with precision. Not only is the receiver tuning frequency synthesized, **but so is the audio tuning.** This is one of few receivers with **3-digit tuning accuracy** for the audio subcarriers. For example, it does not just read out 6.8, it will read out 6.80, 6.79, etc. The subcarrier tuning is **very**, **very**, **accurate**. One is able to confirm that not all subcarriers are on frequency



INSIDE the Electrohome E1 receiver there is plenty to be amazed at, and, plenty of room for new expandable circuit boards.

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Mike Speasel TVRO Dealer, Decatur, IL



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The audio processing is **the best we have ever heard** on a consumer receiver. Again, we questioned Electrohome. It seems that one of the engineers assigned to the task force to design the E-1 is an audiophile and a semi-professional musician who cannot tolerate poor audio. We were told that he walks around most of the time wearing a set of headphones. It was his attention to detail that resulted in the audio section of the E-1.

We keep repeating that this is a receiver with a computer onboard. The audio section is no exception. Each transponder can be programmed for 6 different subcarrier/mode combinations. For example, you can program for stereo discrete, and matrix and mono, and three other combinations. As an example, you can tune in F3 TR8, and program all of the different stereo audio subcarriers. There are other features such as muting between subcarriers, and automatic switching between narrow band and wide band transmisson modes.

To put the audio section to the test, we used Kenwood and Fisher audio amplifiers, and Sennheiser headphones. As our benchmark, we used the USS Maspro subcarrier tuner which has built-in tuneable equalization and noise reduction (the Maspro is among the best subcarrier tuners on the market and the one which we generally use for audio reception). We did our comparison using KKGO-FM Los Angeles, which is found on transponder 17 of F4. **This is a difficult subcarrier to tune accurately** because it is narrow band, and the video transponder is below threshold at our location. Furthermore, TBN, who broadcast on the video carrier, are notorious for overmodulated video, which affects the KKGO-FM subcarrier reception on many receivers. KKGO is the audio service which we like from sun-up to sun-down, and they program big bands and the kind of jazz recordings with a lot of frequency response.

The audio performance on the Electrohome receiver was virtually identical to the Maspro. It provided excellent frequency response through our audio amplifier. You could even hear scratches on the phonograph recordings! You could also hear all of the highs, including cymbals, and bells! Audio signal levels were slightly lower through the Electrohome receiver, and one could notice a slightly better low-end response on the Maspro, but make no mistake, this is an audiophile-grade receiver, and anyone who loves jazz, or good music will cherish the bonus found on this receiver.

In our experience, the audio stereo subcarriers have been **undersold** by dealers. Surely if buyers of TVRO's knew that they could acquire the world's biggest collection of Jazz, Classical, and Country records on KKGO, WFMT, etc., with studio-quality audio reception, a lot of buyers of TVRO's **would pay** a few dollars extra for these features. Of course, the receiver can also tune in all TV stereo modes with the exception of the multiplex transmitted by HTN and Bravo, and a couple of the CANCOM audio signals. Personally, I wouldn't get too excited about not having the capability to tune in the "oddball" multiplex services. Electrohome did an excellent job documenting more than 20 audio subcarrier services, plus 10 stereo TV audio services. For the first time, the user has the proper formats (i.e. discrete, matrix) at his fingertips. It makes programming the subcarriers much easier.

ACTUATOR CONTROL

Built into the E-1 is a full actuator control system, which is programmable. Once you program the receiver, you press a button on the keypad marked "Sat" then a number. You determine the number yourself. In case your dish is "iced up" you can "fine tune" the actuator with the keypad which is built into the receiver. You can also program the east and west limits for

the actuator. The receiver comes with a matching actuator power supply in a separate case. The power supply has CSA (Canadian Standards Association) approval, which is slightly more stringent than UL (Underwriters Laboratory). Electrohome is one of few manufacturers which has gone to the trouble of obtaining CSA approval. While this may seem trivial, many insurance underwriters which issue residential insurance are balking at the fact that a lot of TVRO electrical equipment hasn't been tested or approved, and underwriters may refuse to pay claims for fires started in unapproved electrical equipment.

Unfortunately, the documentation for the actuator control was designed only for the Warner drive unit. This didn't do us much good as we had a Tracker II with a Saginaw drive unit. Retrofitting is not the easiest task, and the Saginaw drive unit was underdocumented. The Electrohome unit specified additional wiring connections which weren't apparent on the Saginaw motor. To be fair, Electrohome's manual suggested that we contact our "stocking distributor" for further information. We suggested that Electrohome team up with all of the other actuator makers, and include all of the literature for hook-up, with the receiver. This would save a lot of time, aggravation and possible grief. To be fair, however, after a fair amount of study, we mated the Saginaw drive to the actuator, and it worked. The E-1 also comes with an actuator box with red LED digital indicator, which is easily interfaced with the receiver. The actuator box has an east-west switch and is easy to operate. Thus, you can manually control the dish from the receiver, or the actuator, or automatically move the dish via the remote keypad. Obviously, the actuator control system is sophisticated, and its value must be taken into account in terms of the overall pricing of the E-1 system.

POLARITY CONTROL

The E-1 can be programmed for magnetic and solid-state polarity controls. Best of all is the fact that the computer memory can be **programmed for skew characteristics of each transponder on each satellite.** The receiver owner doesn't have to worry that channel polarity on Galaxy & Westar is opposite to the channel polarity allocation on the Satcom satellites. Once programmed, the polarity and skew can be manually adjusted at the receiver.

A FEW Pet Peeves:

- With a built-in clock and powerful microprocessor, we would have liked a programmable feature so that we could switch from transponder to transponder for recording.
- 2) The receiver was difficult to program . . . at first! The original instructons were apparently written by electrical engineers for electrical engineers. We and at least one other person had trouble programming the clock(!) and some features.

This peeve was ameliorated by the **new** operators manual which was released subsequent to our receipt of the E-1. The new manual is a lot better, **but could be improved with more information concerning the actuator.** There were also a few functions which were not documented in the operator's manual (i.e. slowing the rate of scan). Overall, however, the manual as currently written will allow the owner to program and operate the receiver with a minimum of confusion.

3) The programming codes for various functions run to 5 digits. In order to activate the read-out for the signal strength meter, you must punch in a 5 digit code, which is difficult to remember. We would have preferred a

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n to 5 signal which red a separate LED display or meter for signal strength.

- 4) The infrared sender could be a little more powerful or the infrared receiver could be a little more sensitive. We had some problems in bright light (incandescent and sunlight) in sending signals to the receiver. Electrohome suggested that the sender should have a 25 foot range. Overall, the keys were laid out well, and the sender performed adequately.
- 5) We would have liked a little more speed in scanning channels up and down when using the remote control. It would have been nice to have been able to program the speed.
- 6) It was only through discussions with Electrohome that we learned the receiver's automatic scan mode (which is very fast) could be slowed by depressing the keypad located on the top of the receiver (this was not in the owner's manual). Unfortunately, you must hold your finger on the control, to slow the scan speed. It would be advantageous to be able to set the scan speed so that the receiver pauses a little longer at each channel. This we find essential when setting up the antenna.
- 7) Although the downconverter has weatherproof recessed connections, they are hard to grapple with if you have small hands. As mentioned above, Electrohome did not design the downconverter. Besides, if you are lucky, you will only have to connect the downconverter once, at the time of installation.

OTHER Items

Inside the receiver is well designed. Circuit boards are well secured, and there is a considerable amount of shielding.

There is sufficient room within the cabinet for additional boards. The receiver has a very large heat-sink at the back of the cabinet, and overall, the receiver runs very cool; in fact, cooler than most receivers.

PARTING Comments

The E-1 is a premium product, but attractively priced considering the innovation. You are purchasing:

- A) a fully programmable receiver,
- B) an audiophile's stereo system,
- C) an antenna controller, and,
- D) decoder compatibility with unfiltered unclamped video, all integrated into an attractive package, and controlled by means of a single wireless keypad. Once programmed, the E-1 provides trouble-free operation, even in areas afflicted by heavy terrestrial interference. The audio and video performance is well above average, and the receiver is compatible with the Oak encryption systems, and likely the M/A Com VideoCipher II system.

Considering the level of video and audio technology, and the wireless built-in actuator, this is a very competitively-priced receiver (a separate programmable wireless antenna actuator would cost several hundred dollars alone). We were favorably impressed by the performance and overall user-friendliness. **Electrohome** is building a private-branded variation of the E-1 for **Channel Master**. Sales of the E-1 under the Electrohome name to major distributors have been good.

The initial success of the receiver has been very gratifying for the company. For more information about the E-1, contact Roger Gratl at (519) 744-7111.

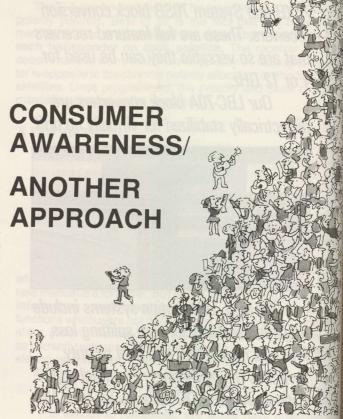
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The industry is grappling with a problem; consumer awareness. How does the TVRO industry 'get out a message' to those millions and millions of potential customers spread all over North America? How do we educate them on TVRO?

Some of the more experienced marketing types such as Jim Rothbarth (STS of Missouri) and Bob Dushane (Janeil) know, by experience gained in other fields, that the first step in selling a consumer a TVRO is getting the consumer to stop long enough to look at and understand TVRO. Many feel that if the average consumer will simply do this, "the system will sell itself". Dealers may disagree on this point but would have to agree that if there is an 'increase in store traffic, there is an increase in sales' at the same time.

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PIONEER MEMBER OF

consumer recommendation; one 'pioneer-user' spreads the word to friends and relatives and the local dealer benefits. Our growth to date has been a classic sales pyramid; early pioneers infected others who in turn bought systems and infected still others. The base grew and the pyramid got larger and larger.

Left alone, such a growth pattern will just about double itself each year; **up to the point of saturation**. "Saturation" occurs when either the marketplace is exhausted or there is a 'price sensitivity' to any further expansion of the market (i.e. everyone who can 'afford' one has bought one).

Rick Schneringer of STTI tosses around numbers which first appeared in CATJ magazine more than a decade ago. In that reference, a joint committee funded by the U.S. House and the U.S. Senate determined, with what they felt was accuracy, that some measurable quantity of U.S. homes were lacking in basic television services. Those 1974 numbers were:

- Just over 1,000,000 U.S. homes are so located that they are unable to install a traditional (outdoor) TV antenna and receive even one channel of television;
- Just over 4,000,000 U.S. homes are so located that with an outdoor antenna they can receive no more than 3 channels of television;
- Some 23,000,000 U.S. homes are so located that with an outdoor antenna they can receive no more than 5 channels of television.

There are cautions concerning these numbers if you are into quoting 'sources'. The actual number of homes was not 'counted'; it was estimated by careful analysis of TV station coverage patterns versus terrain and distance factors which affect TV reception. For those homes receiving three or fewer, or five or fewer TV stations, no attempt was made to determine 'which three' or 'which five' TV stations the homes could receive. For example, a home in rural Kansas might have reception from **three** channels **but two of those** channels might be affiliated with CBS and the third might be affiliated with PBS; yes the home has three channels but in the process of receiving three channels, there is **still no** ABC or NBC 'service.' So the numbers, while impressive, are not all that persuasive.

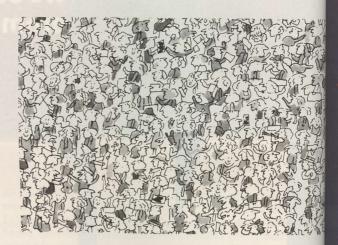
The 1974 measurement did take into account local cable systems then in operation; saying that where there was a town so located that the residents of that town could only receive three channels of television with outdoor antennas, if there was a local cable firm supplying 12 channels, the residents of that community were NOT included in the 'three or fewer' count. And all of this was prior to the first cable industry use of satellites so in the 11 years since the analysis was performed, many factors have changed.

The purpose of the study was unclear; **The Denver Research Institute**, no longer in business, did the study under the direction of then **Senator Howard Baker** of Tennessee. Baker wanted some changes in the rules and regulations concerning the distribution of television broadcast services in the USA but it was never clear what changes he favored. The 'study' was simply a 'a tool' that allowed his staff to decide what to do next.

Well, nothing was done 'next'. The study was completed and published and other than occasional quotation in reports such as this, **it had no** direct impact on any action in Congress or at the FCC in the ensuing years.

HOW Big?

So just how big is the REAL market for TVROs? If one was to create a list of potential customer categories, certainly those



people who receive **no television at all** (because of location would top the list. Those who receive three or fewer channel would be close to the top of the same list. Whether those who receive five or fewer would make the list at all is arguable.

If the Denver group's study was reasonably accurate, the back in 1974 we had a potential market of at least 4,000,00 homes. How that number may have changed in the ensuin years would be the subject of an intensive study.

The industry will reach the 1,000,000 terminals-installed plateau in May of 1985. The industry expects to end 1985 will around 1,400,000 terminals installed. Whether one include Canadian terminals in either number is open to debate but most assume that since the equipment 'flows freely' in both directions across the border, at least some of those terminals being counted are ending up in Canada (as well as Mexico and the Caribbean). Terminals manufactured or distributed from within the United States but placed in use elsewhere are not an inconsequential consideration when you realize that every small areas such as the Island of St. Marteen in the eastern Caribbean now boast over 350 home terminals.

Of course not all of the 1,000,000 terminals to be installed by late in May have gone into backyards where three or fewer off-air TV channels are available; some sizeable percentage are installed where off-air reception is quite decent. Nobod has done a study and nobody with any credentials in measurement has issued any estimate of that 'non-rural' segment our market. Certainly it is reasonable to accept that 20% of a systems sold to date would be installed in urban markets and the CSD 'Dealer Dialogue' (appearing in CSD/2 for Februar 15th) is any indication, the percentage of systems now being sold could be as high as 50% for non-rural markets.

SPACE's **Rick Brown** makes the point that as long as the industry has a 'rural mind-set', thinking only in terms of rura areas and rural customers, the full market size is at bes 1,000,000 to 2,000,000 terminals. He points out, however that if the concept of TVRO is broadened to include non-rura areas, the so-called suburban and even urban markets, the size of the market grows appreciably; to perhaps 20,000,000 systems. And those seem like reasonable hip-shot estimates upon which to base some future decisions.

The rural customer buys out of need; he elects to spent M A \$1,000 to \$8,000 on a home system because he is present with present a significant segment of American culture; video in formation and entertainment. There is no other way, at an price, for this person to become part of the 'global village' Arthur C. Clarke.

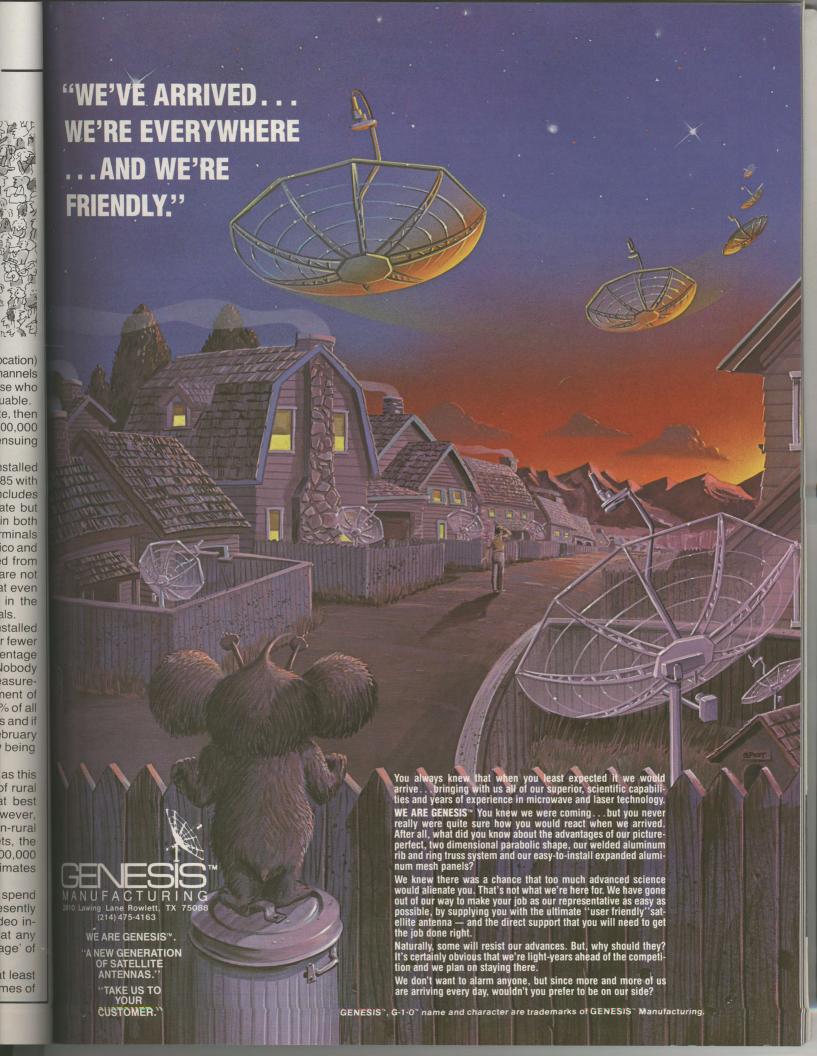
The suburban customer in theory has or will have at less off-air reception available and in at least 70% of the homes

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America, he will also have cable television service available. And ultimately that 70 percentile number will be as large as perhaps 90%. Cable has come a long ways since its formulative days in the early 50's in the hills of Oregon and Pennsylvania.

The suburban customer, then, buys not so much out of 'need' as he buys out of 'interest'; he has an interest in being 'plugged into' more of the available information and entertainment world than he can presently avail himself of with his existing services. His purchase of a TVRO is descretionary; television may be 'basic' (as is electricity) but because he already has **some amount** of television service, his selection of a TVRO is not based upon the same motivations as his 'country cousin'.

So we have two distinct groups here at work; the rural market where there is 'need' and the suburban market where there is 'desire'. It is entirely possible that a **single marketing program** cannot be developed which targets **both groups** in the same campaign. If the motivations differ, then the message must also differ to be effective.

Example: Winegard runs TVRO system advertising in **Playboy**; the publication. **Playboy** identifies and measures its readership carefully and Winegard knows that the 'upbeat', affluent, well educated reader of **Playboy** represents a special segment of the market. It is largely a **suburban** readership.

Example: R.L. Drake runs TVRO system advertising in **The Farm Journal**. The 'Journal' identifies and measures its readership and even without that identification process, the

on the word 'choice', feeling that cable offered to the viewer a 'greater choice' of programming options than normal off-air reception.

The cable group feels strongly that their best growth potential is in areas where cable is available but where cable is not being subscribed to by sufficient families. A cable system in Dallas, attracting only 30% of 'the homes passed' (by cable i.e. where cable is available) is already 'missing' a significant segment of its market. How does cable attract these non-subscribers to cable lines? What is it, about the public's perception of cable, which has 'turned these potential customers off'?

If cable had a full answer to this important question, cable would be in far better shape in urban or suburban America than it presently is. The urban and suburban markets have failed to attract the 'percentages' they anticipated. Even in cities such as Boston, where the 'first tier' of programming is virtually 'free' (starting out at \$2.50 per month) the 'penetration numbers' have been disappointing.

And there is a message, a warning, here for TVRO in suburban and urban markets as well. If cable cannot attract viewers to 30-60-90-120 channel service for a modest (or no installation fee and a modest (\$2.50 to \$10) monthly fee for 'basic service', what are the odds that TVRO with \$1,000 to \$8,000 system packages can attract the same 'hold-outs'? If the cable market in urban America is closer to 30% than 50%, and closer to 50% than 70% in suburban America, what would TVRO's share of market be in the same locations?



very nature of the publication tells you who is reading the publication. This market is largely self-employed farmers and ranchers operating essentially 'family farms' in **rural** areas.

Winegard would 'key' or tailor their advertising to appeal to people who are looking for 'new horizons to conquer', new avenues of expression. Drake, on the other hand, would tailor their message to people who have never seen **The Today Show** because they live where there is no NBC (etc.) off-air service.

The industry, on a much bigger scale, faces the same problem when attempting to create its own 'media message' for distribution across the land.

CABLE'S Approach

A similar problem faces the cable television industry, but with fewer 'wrinkles'. The cable industry has formed its own all-industry promotional group, largely funded by the larger MSO operators. Not every system owner and operator contributes money nor manpower to the project simply because many system operators do not recognize the value of a national advertising campaign for cable; the generic 'cable'.

The cable group has been running radio and television commercials promoting 'generic cable' through February and March; several million dollars is being spent to reach non-cable-subscribers with the 'basic cable message'. Just finding an appropriate, acceptable to all parties, 'theme' for the generic cable message required nearly two years of debate and meetings from within the cable industry. They finally centered

RURAL vs. Suburban 'Thrust'.

Way back in 1979, **Scientific-Atlanta** offered 'private TVRO terminals' to rural homes. They concentrated their marketing on ranches and farms and further divided down their market to those farms and ranches where there was a full-time 'family environment' operating the ranch. According to S-A sources at the time, there were 330,000 such 'units' in America. But during the relatively short period of time during which S-A actually accepted orders for these early 'home terminals, a funny thing happened; while **all** of their advertising and marketing thrust was to their identified ranch market less than 25% of the early S-A systems sold and installed actually went to such ranches. The balance ended up in typically suburban areas. This bothered S-A at the time.

Of course the systems being offered in 1979 by S-A were quite expensive; \$25,000 and up. When the price did come 'down' to around the \$5,000 mark, the rural market 'took off and essentially sustained the TVRO marketplace for the ensuing three years or so.

S-A interpreted their early results in this way:

'The rural market was more price conscious than the suburban market, and high price was less of a deterrent to suburbia than rural America.'

The S-A sales program was very short lived however (less than four months) and doubtless had it sustained for a year or

MARKET STUDY/ continues on page 58

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- Select 6 code.
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- Plug in c
- Parental
- Optional control b

PROGRAM 63 SATELLITES IN 50 SECONDS!



Easy Installation

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- Autolearn[™] programs all satellite and skew settings in 50 seconds.
- Uses solderless 5 wire 36 volt installation.
- Low battery, transmit, and receive lights isolate
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- Digital noise filtering eliminates counter resetting.
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- Turbodrive™ gently starts and stops the motor with a 7 speed transmission for longer life and more
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The control features a lock-lamp system designed to make programming simple. That means you'll save installation time. And its circuit design prevents memory loss due to power failure. The 36 volt motor drive features two adjustable limit switches for safety, 1500 lb lift capacity, and complete water sealing. Th means you'll save service calls.

And it's easy for your customer.

Interchangeable, illuminated index tabs corre pond to sixteen programmable selector switch making this control extremely easy to compt ALABAMA, Athe hend, and even easier to operate.

So, why not make life a little Boman Industrie easier for yourself, with the model AMC101/460 motor drive and control system from Boman Industries. It's simple, and it's dependable.



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This exceptional value is augmented by a list of features that makes a powerful statement about marketability.

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And, the attractive slender design of the SR-1500 will make it a welcome addition to any family entertainment center.

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MARKET STUDY/ continued from page 54

more there would have been some changes in the early trends. Remember that at the time S-A was in the marketplace with these early terminals, it had the **ONLY** organized marketing and sales program selling home systems to private citizens (as opposed to commercial systems for cable, motels and hotels). One of the prices one pays to be first is that one has to create his own roadmap!

The present industry discussion concerning creating an 'all-industry' consumer awareness program has not zeroed in on either the approach to the 'educational program' nor the target audience for the program. The concept to date has simply been that the industry raises funds, commissions some promotional agency to create an 'awareness program', and somehow sponsors or pays for the distribution of the 'awareness message'. No-one has asked about 'target audiences', 'message content', or 'market size' yet.

Through all of this, however, it appears that in rural areas where there is a built-in need for the service and system, the systems all but sell themselves. The public in rural areas is already 'aware' of TVRO; virtually everyone now knows somebody with a system or has a relative with one. There is very little real educating to do in rural areas anymore, except perhaps by the original equipment manufacturers (OEMs) who would like to increase their percentage of penetration by raising consumer awareness of their particular 'brand name'.

Quite the opposite would appear to be true in suburbia; there is confusion amongst those who know about or have been exposed to TVRO over how it is **different from** cable. There is additional confusion in suburbia about the ultimate legality of TVRO and the unfortunate concern over scrambling. The cable firms, now engaged in a 'first strike' advertising program to defuse TVRO growth in suburbia, is taking its toll. Potential suburban TVRO owners, exposed to advertising which attempts to persuade consumers **not to buy** TVROs because of alleged infractions of law, are asking more and more (confusing) questions of dealers.

So where is the 'market' which an all-industry advertising program might best attempt to reach? We'll return to that question shortly.

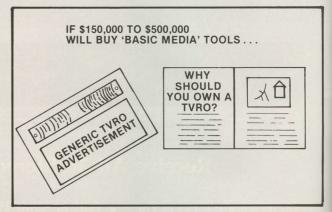
DOLLARS Spent

There are two costs to consider in an all-industry consumer awareness program:

- The initial cost of creating the advertising program (the concept, the specific print and video and radio 'generic' commercials), and,
- The actual advertising space or time itself; the socalled 'media buys'.

To date, the various proposals brought to the SPACE Board have dealt only with the 'first tier' of costs; **the creation of the advertising program** and the tools of that program. Nobody to date has focused on hard numbers, and 'soft numbers' thrown about in conversation have oscillated between \$150,000 and \$500,000.

The concept is that somehow, through some mechanism yet to be created, the initial 'seed money' to fund the creation of the program-tools will come from the industry itself. Various proposals floated to date include a 'tax' (voluntary of course) being levied at either the OEM or distributor or dealer level. Numbers such as \$5 per "receiver" or \$10 per "receiver" have been tossed about. With a 700,000 receiver 'year' (1985) the first number would generate \$3,500,000 while the second would be twice that. Both are larger than is required, but both



assume 100% 'voluntary support' from all of the receiver OEMs or distributors (or dealers).

Whenever funding is discussed, one of the first problems to surface is that not every receiver supplier would voluntarily support the program. Some would object to the concept, others would object to the cost and still others would object to 'the way it is being run'. Universal 'compliance' is but a dream. Those who are neither 'fer' nor 'agin' the concept are particularly troubled by the likelihood that those who do not support the program would still realize benefits. If such a program is to succeed, it would have to be as generic to TVRO as cable's current advertising is to cable. The idea is simply to increase dealer store traffic by exposing millions of people to the advantages of owning a TVRO. There is no way to properly police the dealers who benefit and therefore no way to properly segment out those OEMs who do not pay-in their 'fair share' to the program.

A \$5 'tax' one year ago would not have amounted to a significant portion of the OEMs 'cost' per receiver; this is less true today with some receivers going to dealers in the \$100 range. So we have a new consideration, the cost of the program against the benefits of the program. A \$5 'tax' on a receiver for promotion amounts to spending 5% per receiver for advertising and promotion. That is not an outlandish number for an OEM, except that he is already burdened with his existing advertising budget to reach the trade and others with

THE SAME \$150,000 TO \$500,000
WILL ALSO BUY 100,000 TO 500,000
"PAID-FOR" (NOT GIVE-AWAY)
CONSUMER IMPRESSIONS.

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MULTI-CONDUCTOR CABLE . SMATV PRODUCTS TEFLON/PLENUM CABLE

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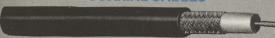
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Nemal maintains an extensive on-shelf inventory of active and passive devices for SMATV and cable systems including trunk and drop cable, splitters, switches, transformers, amplifiers, taps, filters, attenuators, and modulators. Complete Blonder-Tonque line

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Inventory of over 2 million connectors including UHF, BNC, Type N, C, LC, TNC, SMA and F. All UG types meet military specifications.

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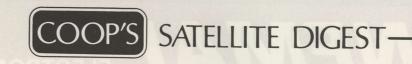
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CALL OR WRITE FOR COMPLETE INFORMATION & PRICING!

PAGE 60/CSD/4-85



his own 'house message'. So the benefits today seem less clearly defined than a year ago.

ANOTHER Approach

There is a parallel problem facing the industry with the HBO scrambling 'threat'. There are significant numbers of industry people **who do not believe** that HBO can EVER put together a home TVRO marketing plan for scrambled services which will:

- 1) Pacify the HBO cable affiliates,
- 2) Please the HBO movie sources,
- Serve all of the receiver OEMs, distributors, and dealers 'equally and fairly' (see Coop's Comments, this issue), and
- 4) Stand the test of the Department of Justice.

There are so many 'competing interests' in the 'mix' that perhaps **no** fair and equitable plan could ever be created that would please all of the participants.

The answer?

Rick Brown and others believe that the TVRO industry must create **its own programming service company** (a plan first floated in **CSD** in 1980). At the Las Vegas show this month, there will be plenty of discussion about just such a plan and possibly an effort will begin to create a programming distribution company to be owned by anyone from our industry who wishes to participate. Such a plan would involve allowing every receiver supplier in the industry to share in the technology of the scrambling/descrambling system, and it will include our own dealer network in the plan because **they will be** the 'agents' for the scrambled service.

If **our industry** can create its own programming 'corporate arm', why would not the same general approach work for all-industry promotion?

COSTS vs. Return

A consumer awareness program, following traditional approaches, has all of the money flowing in **one direction:**

- The industry spends money to create the advertising and that money comes out of industry revenues;
- 2) The industry spends money to administer the program (the cable industry works through a separate, corporate group established for this purpose) and that money comes out of industry revenues;
- The industry spends money to circulate the program (through media advertising 'buys') and that money comes out of industry revenues.

The 'return', or the promise of return, comes **only when** the consumer 'receives the message', **goes** to a dealer's shop, is **exposed** to TVRO, and **buys a system.** The ultimate message is the dealer's message and there is no method to insure that the dealer will promote **only** those brands which are sponsoring the program; he may well elect to 'push' a receiver which is not a contributor to the program. If ten receiver OEMs participated and 10 others did not, and if the dealers who realized the increase in store traffic ONLY pushed the receivers from those ten who did not participate, in short order the entire program would stop because those who are funding the program are not seeing an increase in sales.

Suppose there was an alternate system which retained control of the program and the results of the program within the 'family of firms' which directly supported the program? And suppose the same program was self-funding, from the first 'point-of-contact'?

HERE'S How

The promotional programs being discussed by the SPACE

board talk in terms of 'millions of consumer impressions' per month. The concept, not yet funded, says that everytime a consumer watches a television program or purchases a magazine with a generic TVRO industry position in it, that consumer is 'exposed' to the wonders of owning a TVRO system.

Unfortunately, in buying print space in **TIME** or television time on **Good Morning America**, there are two factors working against the efficiency of that 'message' being retained by the consumer:

1) The message is mixed, out of context from the editorial material around it (TIME) or the entertainment either side of it (Good Morning America), so it becomes a 'blur'. There is not sufficient page space in TIME nor air time on GMA to do more than 'tantalize' the potential consumer.

This means that a significant part of the impact of the message is 'lost' to the consumer and unless the message is repeated frequently, the consumer is not likely to be motivated to act. Remember, we are asking the consumer to get up out of his or her chair, get into their car, search out a TVRO dealer, and then spend an hour or so learning about TVRO. That IS asking quite a bit from a consumer, especially when they realize that at the end of it all, there will be an invoice for \$1995 or \$2995 waiting for them!

2) The message reaches everyone; all 800,000 TIME subscribers in the boroughs of New York City, all 600,000 homes in Chicago tuned into GMA. The 'cost per thousand' for people or homes reached may be reasonable (such as \$4 per thousand) but in the process of being reasonable, it is also reaching a significant number of people and homes who are not 'our market' to begin with; remember cable's low penetration in suburban and urban markets!

Now, it happens that we have a vehicle virtually in place which could do a much better job for us with no real long term investment on our part. What vehicle is that?

For several years **STV Magazine** has been newsstand distributed throughout the United States. According to the publishers, up to 100,000 copies per month are taken for newsstand distribution by a division of Warner Brothers which is in the magazine distribution business, and placed on newsstands.

Coming out in June, we have a pair of new, additional, 'consumer oriented' satellite TV devoted publications for the

THE INDUSTRY NEEDS CONSUMER SELLING TOOLS, NOT RAZZLE-DAZZLE.

- 1) AN INDUSTRY-SUPPORTED CONSUMER DISTRIBUTED NEWSSTAND CARRIED TVRO 'MONTHLY' WOULD REACH PEOPLE WHO HAVE A DIRECT INTEREST IN OWNING A TVRO; NOT A SHOT-GUN APPROACH THAT REACHES MILLIONS WHO DON'T CARE OR CAN'T USE A TVRO.
- 2) THE "SEED MONEY" REQUIRED IS "SMALL" AND THE PROGRAM IS SELF-SUSTAINING AND SELF LIQUIDATING!
- 3) THE PROGRAM IS ITSELF A 'VEHICLE' FOR OEM SUPPORT SINCE OEMS CAN USE ITS PAGES TO REACH POTENTIAL CONSUMERS WITH BRAND RECOGNITION AND BRAND ADVANTAGE 'MESSAGES.'

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*Applies

California Amplifier's TVRO Products Now Have 2-Year Warranties!

One Word Explains How We Do It: QUALITY.

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Yes. The first company to break the noise barrier in the Home Satellite TV industry with strong, silent LNA's, now gives you two-year warranties on all TVRO products.*

How can we move ahead of the industry with extended warranties on our proven line of LNA's and TVRO accessories?

Quality. Plus strong engineering, and the best made-in-America technology.

California Amplifier products incorporate computer-controlled automated assembly. Every LNA is burned in and electronically tested five different times



We give them two-year warranties because we're absolutely sure they're going to last!

If any problem ever occurs, we also give you the fastest service response in the business. Including 24-hour turnaround on all warranty returns, and full-time technical assistance.

Strong engineering. Consistently reliable automated

assembly. Quality control second to none, LNA's with the widest range of noise temperatures available, lightning protection, built-in band-pass filters, internal voltage regulation,

weatherproof construction, and more. That's what you want. That's what we give you!

Our people started out as

pioneers in the TVRO business. Now, as a successful public company, we're proud to be the leader in new product innovation and service.







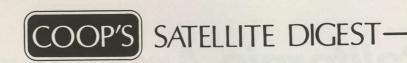
in the production cycle. Assembly processes are inspected under a microscope to meet rigid quality standards.

Our products are subjected to a series of grueling random-sampie tests. Water immersion. Shock. Temperature cycling. Everything in the book! The result? Long-term reliability is built in.



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*Applies to all products purchased after November 1, 1984.



consumer. Both of these additional publications talk in terms of 100,000 copies per month, newsstand distributed coast to coast.

How does that help us?

The same \$150,000 being discussed **just to create** the print media ad layouts and the basic radio and television commercials would also create between two and three complete **issues** of a 96 page consumer related publication. The same \$150,000, invested by the suppliers in our industry who want to participate in a national educational program, would be self-liquidating.

How's that?

A professionally produced publication, **owned by an 'all-industry corporation'** (the same type of all-industry corporation being considered for the distribution of scrambled programming), would be a 'closed loop'. Let's assume twenty OEMs decided to acquire stock in the corporation and \$150,000 was raised to fund the first three issues. That would be \$7,500 each. Armed with this 'seed money' the corporation creates three issues to be released in 30 day intervals. The same 29 firms also agree to take some amount of paid-for advertising space in the publications and with some skill they would be able to make their advertisements not only excite consumers about brand name products, but also send consumers directly to dealers who handle those products.

Advertising revenue aside, the first 30 days would be 'dry' while the publication's first issue was out on the newsstands and selling. By the time the third issue was released, gross revenues coming from the newsstand sale of the first issue would have 'cycled' and the publication would be off and

running.



Now, why would an all-industry supported consumer publication reaching 100,000 people per month be a better 'awareness program' than a national print and television media program reaching 30,000,000 a month?

1) Those who participated, through ownership in the corporation and advertising in the publication, would directly control their own 'feedback loops'. The hassle over 'those who don't pay benefit' would be greatly reduced if not eliminated because those who played would be the only ones directly exposed in the newsstand publication.

2) Within a 96 page issue, there is more than adequate room to paint an excitement and adventure format which captures the 'real flavor' of owning a TVRO. You cannot do that in a 30 second TV commercial or a single page in TIME.

3) The program pays its own way because the publication would have a newsstand price, calculated to at least retire the printing and distribution overhead for each issue.

4) The program is its own 'selection tool' because only those consumers who have a real potential interest in owning a TVRO are going to spend the newsstand price of the publication to learn about TVRO. Everyone 'reached' through such a publication is a real, live potential customer. Is it not better to reach 100,000 (and upward) new potential owners of TVRO each month than 30,000,000 people who don't understand it and who have to make a deliberate attempt to learn about it, once briefly exposed?

5) The program offers those suppliers participating one unique set of marketing tools; consumer buying trends, TVRO owner use-trends can be measured directly and accurately through the readership simply because every reader is a source of marketing information. Those OEMs participating would have 'first crack' at all of this data and be able to shape and mold their own promotional programs based upon this 'feedback loop' rather than 'guessing' what the consumer is thinking about.

6) Dealers, through their retail outlets, would have an effective 'tool' to distribute to potential buyers of TVRO; a monthly 'journal' devoted entirely to the world of TVRO in a way that makes it clear that owning a TVRO "is about the most fun you can have, legally.."

7) Questions relating to legality of reception, zoning and other areas which are on customer minds would be dealt with routinely and with the consumer in mind. A dealer in turn could simply "flip to page 48..." to answer a consumer's question concerning installing a TVRO antenna in his front yard.

There is one other good reason why an approach such as this makes excellent sense; unlike an all-industry program supported by a 'tax' on receivers (LNAs, motor drives, etc.) where all of the money flows in one direction and the program is a giant sponge 'soaking up funds' monthly, this one could and should be operated like any other profit-making business. It would actually return dividends to the 'stockholder/owners'! Can you 'have your cake and eat it too?' With the proper framing of an 'all-industry-promotional-company' the answer is yes.

SIDE Benefit

There is one more plus here which cannot be matched by a giant sponge soaking up 'taxed donations'; the 'aftermarket'.

Spun of made micropequip smoot anten



Spun aluminum antennas made on automatic microprocessor controlled equipment gives you the smoothest, most accurate antenna.

Sold by most major distributors.

Call us for the name of the distributor nearest you.

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Satellite PO Box 239 Prairie du Chien, WI 53821



An exciting, well written, well distributed publication slanted totally at would-be **AND** present users of TVRO would be the kind of medium which the industry will need one day soon to deal with the 'TVRO After-Market'. Now, what is that?

All markets consist of the 'initial sale' and those 'follow-up sales' to people who have 'already bought'. A family starting out with a \$1495 system less motor drive is naturally interested, at some point, in a motor drive. Or a stereo adapter. Or a better LNA, and so on. It is an unfortunate fact that a sizeable percentage of the so-called dealers who once were in our field are now off someplace else, doing something else. Not every TVRO user today can call up the dealer he purchased from to buy additional equipment.

A publication devoted to the fun of owning and using a TVRO system would be an excellent vehicle for reaching present owners with editorial and advertising materials designed to entice them to 'trade up' for a better system that does

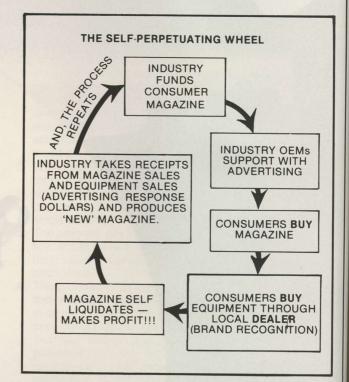
more for them.

Once again, you would approach this as a closed-loop system. Arunta, for example, would promote stereo processors and side-line their advertising with a list of authorized dealers. The Arunta dealers benefit directly and the consumer benefits because he can select a dealer close by.

DECISION Time

The program outlined here is nothing more than an outline; an outline developed over several months of talking with OEMs, distributors and dealers about their concerns and fears regarding 'consumer awareness promotion'. Certainly such an approach **does not answer** all problems nor satisfy all objections. It is far 'more fun' to walk about talking of the 30,000,000 impressions the industry will 'buy' in June than it is to speak in terms of 100,000 impressions. But when you consider the exceedingly high 'wastage factor' present with most consumer advertising, and the mountain of problems presented whenever you ask business firms to 'voluntarily tax themselves' for some project that is ostensibly 'good for everyone', the tradeoff to smaller numbers may not be as severe as it appears at first glance.

When a 'publishing company' (i.e. CSD) suggests a plan that involves creating a new 'publication', there will always be that group that simply dismisses the proposal as 'another plan' to launch another publication. That would be a pity in this



case since **if** that was **our intent**, we would simply go out and do it almost precisely as outlined here without mentioning it in public **until** it was done.

No, this is simply an effort in creating dialogue; an attempt to force those from within the industry who are wrestling with finding the best approach to consumer awareness to consider every possible alternative before committing the industry to some 'voluntary tax scheme' which appears to be unworkable.

If we do nothing at all, we **will continue** to grow. If we do 'something', we **will grow** faster. The trick is to find the correct balance between doing nothing (and allowing nature to take its course) and doing too much (and wounding the program by burdening it down with too much weight). That is the decision now before us as an industry.

ROOTS OF TVRO/ Part 15

About this series: The 'seeds' planted in U.S. television reception regulations, by the Federal Communications Commission in the period 1946 through 1960, have created the need for the home TVRO industry of the 1980s. Various FCC decisions, involving channel allocations, network practices, and even color standards laid a foundation of rural neglect for millions of Americans who would go without adequate television reception until TVRO. Your understanding of this foundation will contribute to your success as a seller of TVRO systems. This series originally appeared in two 'block-buster' issues of CATJ magazine, published by 'Coop' in the mid-70s.

All right, so the FCC has (with the able assistance of the networks and the

marketing measurement people) created a gerrymandered allocations table

• Pict

The new I puts qual tips. Confine tunin You'll al quality feviences.

The DSB-700 Home Receiver:

ALL THE QUALITY FEATURES YOU'VE LOOKED FOR, IN THE PALM OF YOUR HAND.

Infrared remote control

Block downconversion • Capable of multiple-receiver hook-up
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Picture quality comparable to commercial receivers • Both 4 GHz and 12 GHz compatible
 Video clamp/unclamp switch and composite baseband output • Frequency stability unmatched by other home receivers • Compatible with mechanical and electronic polarizers as well as DX's dual-polarity system • Affordable price

The new DSB-700, with infrared remote control, puts quality satellite reception at your finger-tips. Control channel selection, volume, and

fine tuning from anywhere in the room. You'll also appreciate the sharp picture, quality features, important user conviences, cost, and attractive design.

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From every standpoint—quality, performance, price—the DSB-700 is far ahead of other home receivers. The same features are avail-

able, without remote control, in our DSB-600. All developed and engineered by DX Antenna, world leader in satellite reception systems.

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Manufactured by DX Antenna Co., Kobe, Japan



that purports to make television service available to virtually all of America.

FCC Chairman Wayne Coy, in 1949, made the comment that "rural people are important people too" and that he doubted "they will be content to see the miracle of television pass them by."

Naturally they have not been content, and where the federal government has not provided for them, they have, rightfully, provided for themselves. While many of those unserved homes depend upon Community Antenna Television Systems, many additional rural residents depend upon something called a "booster," or as it is now known, a "television translator."

A cable system utilizes none of the

pancy of (radio/television) public spectrum space, because CATV occupies none of the spectrum! Yet the basis for the 1934 Communications Act (and the forerunner, the 1927 Radio Act) was the orderly control (through regulation) of the private use of the public radio spectrum. How the Commission backed into the regulation of CATV and assumed authority for CATV regulation is discussed further on in this issue of CATJ.

A television booster, or translator, on the other hand, does utilize a portion of the public spectrum. Under the 1934 Communications Act, the FCC is clearly charged with regulating and promoting the most efficient use of this "spectrum" of public property.

A television booster/translator lo-

RURAL TV TODAY—22.4 MILLION FORGOTTEN HOMES

public airwaves. It receives television signals on a tall tower or atop a nearby hill and carries the received signals to the nearby homes through a secure (i.e. enclosed) piece of (coaxial) cable. Unlike broadcast stations, which occupy their "share" of the public broadcast spectrum, CATV systems communicate (or send) signals from their antenna-receiving site to the inter-connected homes entirely within the private (i.e. not public) spectrum of the system's coaxial cable. CATV systems are therefore very efficient communication systems, because they communicate without borrowing or sharing any portion of the FCC-regulated airwaves. Clearly, the basis for regulation of CATV cannot be the mere occu-

cates its receiving antennas atop a tall tower or on a local hill/mountain, just as a CATV system does. Then it rebroadcasts (through the air and within the public airwaves spectrum) the received signals. It avoids interference by rebroadcasting signals on different channels than it receives on: for example, a television signal on channel 2 may be rebroadcast by a translator on UHF channel 55. Residents of the area near the booster/translator tune their receivers (antennas, etc.) to channel 55, for example, to receive the original broadcast that left the television station on channel 2.

Because translator signals are broadcast into the air, all that anyone in its operating/coverage area needs to

ODOM. The one the others copy.



Some enterprising people out there have found that it's a cinch to make an antenna that LOOKS LIKE an Odom.

You simply buy an Odom antenna and copy its shape. To save more time and money, you stamp it out with a press.

You certainly don't waste money designing the master plugs from scratch, by computer, like Odom does. Or hand-layering the fiberglass and resins, like Odom does. And why go to all the trouble of flame-spraying a reflective layer of molten zinc, when you can just sandwich in some aluminum mesh?

Your customers can tell you why. Because they'll see the difference. Not by looking at the antenna, but by looking at their TV sets.

Others may try to copy the Odom shape. But they'll never copy Odom performance. And to your customers, performance is what really matters.

c-es or e

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S

Dial 1-800-643-2950 for the facts on Odom's complete line of TVRO components. In Arkansas, dial (501) 882-6485. It's SOME DISH.



receive its broadcasts is an antenna and a receiver, both of which are located on the premises of the viewer. This creates a problem for financing of translators. Where a cable operator has a very quick and convenient method of disconnecting cable subscribers who refuse to pay for the service (i.e. simply unplugging the home from the master system), a translator system entrepreneur does not have that option. When someone does not wish to pay, he continues to receive the benefits of the translator unless the translator itself is shut off, in which case all of the viewers in the area lose service. There is no "selective way" for a translator operator to cut off one non-paying viewer, anymore than there is a selective way for WNBW in Washington to selectively decide that certain viewers in Chevy Chase shall not receive WNBW, for example.

Translators began in the West, where residents of states such as the Dakotas, Idaho, Montana, Colorado, New Mexico, and Utah simply took matters into their own hands. The technology for constructing booster/ translator TV signal repeating devices was widely known. The equipment to piece together such a device was readily available off the shelf (much of it came from the CATV industry of that era). All a man needed was a half dozen ready-built electronic boxes, some cable to connect them together, and a set of antennas; one to receive the distant broadcast and one to re-transmit the broadcast over his community or vallev.

Because boosters/translators utilized public airwaves and had the potential ability to produce interference to other communication services, the FCC got very interested in them as

soon as they sprang up in the mountain states. It did what you might expect: it sent out a warning that such devices were illegal, that is, they were operating transmitters which had not been licensed by the FCC and that they were to be shut down. Promptly.

Well, it was easy for Washington bureaucrats to issue such a statement. After all, they sat in the comfort of their snug Washington offices, and they had all of the television they wanted at the mere flick of a switch. But to residents of Coaldale, Co., the FCC statement was absurd. To the people of Coaldale (population 50), television had been a long time coming. What's more, they knew that they were never going to have television signals in their town unless they provided for them on their own. Shutting off their "booster station" was not a temporary deprivation of television; it was a permanent loss. Without the booster, there never would be television to Coaldale!

When the FCC's field engineering office in Denver set out to enforce the Washington order, they (literally) ran into armed resistance in places like Coaldale. It didn't take long for word to get back to Washington, and a few Senators who heard from irate smalltown folk wasted no time issuing a statement to the FCC. Senators Wayne Morse, Warren Magnuson, and Henry M. Jackson told the Commission in the fall of 1955:

"...this situation exists because the present rules of the FCC represent a stumbling block to the installation and operation of short-range, inexpensive booster stations needed in these rural communities. We urge that the FCC promptly establish a set of rules so that small towns can have service that larger communities have, without interfer-

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IF IT'S OUT THERE WE'LL FIND IT



WITH THE BREAKTHROUGH RECEIVER THAT HAS THE ONLY 36 CHANNEL AGILE MODULATOR

The Electrohome SRM36 receiver with built-in modulator will output any one of the 36 low, mid, high and super band channels at up to +62 dBmV. This total versatility takes only a flick of a switch.

The benefit to your customers is obvious. You benefit too, because you no longer need to carry 36 different modulators in your inventory.

The SRM36 receiver gives you the competitive edge in selling the SMATV and private cable market. It incorpo-rates frequency synthesis under microprocessor control for the ultimate in stability. SAW filtering is used in the receiver and modulator, ensuring adjacent channel

Other advanced features of the receiver include RF loopthrough...redundant LNB power capability... and keyboard lock.

Electrohome also offers the SR24 receiver without a built-in modulator.



The Electrohome SM36 stand-alone modulator features the same performance as the built-in modulator. It updates other satellite receiver systems by providing 36 channel output versatility.

For more information, contact an Electrohome distributor. JERRY CONN ASSOCIATES INC.

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ELECTROHOME ELECTRONICS

Electrohome Limited, 809 Wellington St. N. Kitchener, Ontario, Canada N2G 4J6 Telephone (519) 744-7111 Telex 069-55449



ence.

"It is the responsibility of the Commission to make television service available to everyone, and the citizens of small communities should not be penalized because of the slowness of the FCC in formulating a set of regulations..."

Again, this was in the fall of 1955. When Senator Pastore conducted hearings in 1956, the FCC said they were "looking into a new type of service they called translators," to make television service possible for small communities. But the Commission had not yet learned the UHF lesson, and they were proposing that all translator

devices be confined to UHF channels. They kicked around numbers before Senator Pastore's committee, like \$10,000 per channel for a community, but no one thought to ask how a \$10,000-per-channel translator made any sense for Coaldale, Co., population 50.

So the FCC "studied the problem" and tried their best to enforce the Washington-issued order to shut down all illegal boosters/translators.

This series will continue in CSD as we develop the history of 'TV neglect' in rural America.

INDUSTRY AT LARGE

CORRESPONDENCE, NOTES, REBUTTALS AND CHARGES . . .

CSD provides this industry 'forum' for the purpose of allowing members of the industry to comment on industry activities. CSD assumes no legal responsibility for statements made here and those providing such communications are held liabile for their statements directly. CSD/2, issued on the 15th of each month, provides a forum for differing views on industry trends.

FINE Tuning Elevation?

I have a horizon to horizon 13 foot dish mount and find it impossible to exactly track the Clarke Orbit Belt from one horizon to the other. Is there a manufacturer who offers a very fine tune actuator that could be installed to adjust the elevation up and down no more than a few inches?

R.J.McKenna P.O. Box 93 Atlantic Leaseholds, Ltd. Charlottetown, Prince Edward Island, Canada C1A 7K2

We have installed standard linear actuators on our Provo dishes which we use to track the eastern sky birds (see photo). Simply take a short stroke actuator with a simplistic east/west control and install it where it will raise and lower the dish nose or elevation. A counter on the actuator would be useful since we find that you need to know where 'dead center' is when you want to return to normal bird tracking. This particular 'nose jack' is hydraulic rather than electric and it moves a 20 foot ADM dish nose for tracking of the Russian Gorizont bird, where this dish spends most of its life. Oh yes, the current Gorizont bird at 14 west is far more stable (over the equator) than earlier birds in this series; probably because the Russians now have 11 GHz on board and pointing errors for the higher frequency band become far more critical than they were at 4 GHz. Perhaps the day of the 'oscillating figure 8' Gorizont bird is over?



BETTER Service?

"In response to Steven Rieser's comments in the 'Dish It Ou' segment of CSD/2 for November 15th, I certainly agree that on-the-road expenses are high and dealer complaints are frequent. However, if better technical training was offered on a regular basis (i.e. such as

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Unide Luxor Houst

Introducing... **Only Cable** Routinely "Sweep Tested" for 950-1450 MHz Accuracy



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Your cable worries are over. Satellite Video Services now offers you cable that is guaranteed by M/A Com to accurately carry a 950 - 1450 HMz signal. M/A Com's RG 59, RG 6 and Dual 6 Ribbon Cable is routinely 'Sweep Tested'' to ensure you the perfect performance standards demanded in all your block conversion installations. M/A Com Ribbon Cable is available in custom cut lengths or 1000' spools.

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our Satellite Video Services 'free' weekly technical seminars), the 'on the road' salesmen would be freer to help the dealers establish creative selling and marketing techniques rather than being overwhelmed at each visit with a long list of technical problems.

"Satellite Video Services finds on the road salesmen' essential to being a top quality distributor and we routinely provide literature and marketing tools to our dealer 'accounts' in this way. We have been willing to invest the time and money it takes to be a full-service distributor and we feel that a well rounded program is both essential

Donald G. Doney Sales Manager Satellite Video Services RR #1, Box 85-S Paul Saxe Road Catskill, New York 12414

SAIL Away?

I could not help but notice that this dish was apparently growing out of the top of the mast on this sailboat when I visited the Caribbean island of St. Marteen this February. Apparently the wind load was too high because any fool can plainly see that the sail boat tipped over!

Peter Sutro MPI Satellite, Inc. P.O. Box 769 Bernardsville, NJ 07924



And probably the guy who installed it had not completed his SPACE dealer certification course.

BIG Display

Our retail dealership has a 14 foot by 48 foot billboard located on I-65 south of Louisville. That is a 9 foot Paraclipse dish mounted at the top of the sign in the photo. I-65 is the main interstate from Chicago south to Atlanta and it averages 55,000 cars per day past this location. We have had the sign up since October and have been in the TVRO business for some 30 months. We would like to be considered for 'Dealer Of The Month'.

V. Felts
Kentuckiana Satellite
Systems, Inc.
2145 Buechel Bank Road
Louisville, Ky. 40218



Impressive. But we'd hate to have to adjust the feed on that 9 foot 'Clipse' for skew null!

16 FOOT What?

I have located a dish which is between 16 and 18 feet in diameter. It is entirely of aluminum construction with a storm door type of screen mesh. There is no manufacturer name on the dish but it did come from the USA. Can you help me determine the brand and provide some basic data such as f/D from the sketch I am enclosing? Is this dish size adequate to receive pictures from Galaxy 1 or Westar 5 from my location on the northern coast of South America?

George Ming Manager Norvic Enterprises P.O. Box 10622 South America Georgetown, Guyana

The sketch is the unmistakeable profile of a KLM 16 foot dish. This dish with an 80 degree range LNA and a receiver from Northwest SatLabs (see CSD for January 01), or AVCOM, and a Chaparral Polarotor would produce useful if not high quality pictures from several of the US satellites. Good luck!

GET In Line

I hate Bob Cooper; just what does this guy think he is doing! I'll tell you what he is doing, he's trying to ruin our business, that's what he is trying to do. Everytime that darned CSD arrives in our office my boss says "Bertha, hold all of the calls" and then he drops everything, no matter how important it is and he proceeds to lock himself away until he's finished reading every single word that guy Coop and all of those other jokers create. And you know how slowly my boss reads? Brother.

So here I am left holding the bag and manning the phone while 'Mr. Big Shot' drifts off into another world reading your stupid magazine. He thinks CSD is the greatest thing since sliced bread and he is always telling this guy or that guy "Coop says this" or "Coop says

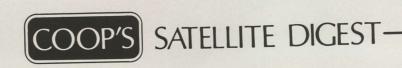
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NTRODUCING THIS PLANET'S
FIRST AND ONLY COMPLETE
LINE OF MATCHING COMPONENT
BLOCK CONVERSION RECEIVERS
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THE FUTURE IS HERE TODAY AT LAS VEGAS BOOTHS 801, 803, 900 & 902.

ANDERSON SCIENTIFIC • 2693 COMMERCE ROAD • RAPID CITY, SD • 57702 • (605) 341-3781

PAGE 74/CSD/4-85



that". I mean when Bob Cooper speaks, even E.F. Hutton must be listening!

Bob Cooper makes me sick!!!

It used to be I only had to put up with this nonsense once a month but then I guess Coop figured out he wasn't doing enough damage around here so he decided to make it twice a month. It's enough to make you scream!

YOU tell ME what to do with a dozen employees, phones ringing off the hook, guys coming in from all over the place to do equipment pickups . . . the place is a madhouse, and, where's our 'Great White Father'??? He's sitting on the can or some other convenient place reading your %#\$(a*&¢ magazine!

Why doesn't Coop just write something that can be skimmed over quickly, like those other satellite magazines? That way Mr. Big Shot could zip through it in a couple of minutes. But no, Bob Cooper has to 'get into it' in such detail and make it so interesting that Bruffo just can't put it down until he has read it from cover to cover.

And even then he's not satisfied. The other day he accused me of mislaying one of the back issues and he nearly took my head off. But I know somebody stole it and I'm glad they did because everytime that dratted CSD arrives here nobody gets anything done until EVERY-ONE has read it from cover to cover.

How about some sympathy. Boy, I'd like to have a word with Bob Cooper's mother because I'd sure tell her a thing or two!

Bertha Stere Office Manageress and Secretary for David Brough Commander Satellite Systems 309 Steeles Avenue East Milton, Ontario L9T 1Y2 Canada

Bob Cooper's mother disavows any responsibility for the way he turned out and suggests he may have hatched from under a rock.

DISCOUNT Selling

I just got off the telephone with a guy who called me up 5 months ago to buy a system. I priced a 12 foot Paraclipse antenna, Drake 240 receiver, and a Tracker IV Plus controller/drive to him for around \$3,000 installed. Well, now this guy is selling systems himself (he did not buy from me) and he offered to sell me the same system with a 100 degree LNA for \$2,300 installed! This system would cost me \$2184 not including shipping. He is apparently buying from a large distributor in Indiana and my beef is not only that he is selling the equipment for no markup at all (some way to run a business!) but that I am certain he doesn't even have a tax number to give to the distributor he is buying from. I have been involved in radio and TV repair work since 1955 and I value the reputation and future more than apparently these fast buck artists do. I, for one, will not buy from a distributor who does not police his selling habits to filter out these people who are not even registered to do resale work.

J.R. Dyer, Jr. Dyer TV Service **Box 88** Springfield, II. 62707

A responsible dealer certainly does not sell a system for no profit. A hobbiest might. With the 'dealer base' growing rapidly, it may be increasingly difficult for a responsible distributor to stay responsible 100% of the time. However, assuming the dealer in question did 'give' the distributor some sort of number that sounded like a re-sale tax number, the responsibility then shifts to the guy who thinks he should sell for exactly what he pays for something. Maybe he'll make up in volume what he is losing on

SATELLITE TV Antenna For South Africa?

The enclosed advertisement appeared in the South African daily newspaper Argus. I thought Bob Cooper might be interested to see how some of the local firms are responding to the knowledge that

there is such a thing as satellite TV. Can you imagine this?

M. Bryska c/o 4 Groenendal Vrede Street Durbanville — 7550. South Africa

Weekend Argus, February 2 1985 11



* There has been a misprint on the blue circular you received.

The Jumbo Antenna is a complete unit for R35.00 also the only Antenna available to pick up Satellite TV by using the wiring of your house as a Giant Antenna for clear but limited Satellite TV programs.

Free plans are available with the purchase of the Jumbo Antenna to enable you to build the Satellite TV receiver - thus giving you the full range of 50 worldwide Satellite Programs.

* Satellite receiver cannot work without Jumbo Antenna.

Golden Magic Mail Order, P.O. Box 2363, Pretoria

It's refreshing to learn that scoundrels and scalawags are not an American invention. The advertisement describes a plastic tube with a pair of capacitors inside and a line cord that plugs into your AC outlet. The capacitors isolate the local AC power service from a pair of terminals that connect to your TV antenna terminals. In effect, the house wiring (and block wiring, etc.) becomes a 'giant' (their word is jumbo) untuned, non-directional, 'TV antenna'. So if you can imagine how effective running several thousand feet of wire back and forth across and around and through your house might be, as a 'satellite TV antenna', you have a good grasp of this deception. All is not lost however; for R35.00 they also send you complete plans to build a satellite TV receiver (those plans have to be classic!) with this caution: "Satellite receiver cannot work without Jumbo Antenna". Or with the Jumbo antenna either.

SUPREME COURT Help?

On January 24th the Supreme Court ruled that a manufacturer now has the right to REFUSE to sell his product to a distributor. The manufacturer claimed his reputation suffered because the mail order distributor in question would not provide adequate service for the merchandise. Prior to that, a distributor had the right to 'demand' that an OEM sell to him. This manufacturer in question had decided in his field of endeavor to only sell through authorized dealers who main-

uniden



UST 5000 Block receiver offers LED channel display, automatic polarity control, slow and fast scan.



UST 6000 Block receiver features expanded audio format and fine tuning skew adjustments.



UST 7000 Block receiver features IR remote built-in programmable antenna control accommodating up to 81 satellite positions in memory.





UST 730 Antenna Positioner features built-in programmable antenna control and Opto-Interrupt circutry.



UST 710 Antenna positioner offers compact styling, manual east west control and 3 digit LED readout.



UST 110 Aluminum Mesh Antenna is designed for maximum flexibility and maintenance, easy to install and weather resistant.

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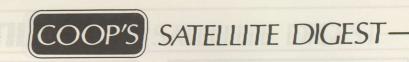
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Satellite Video Services WNY, Inc.

East Avenue Extension, Hornell, NY 14843 607-324-3435 • 800-642-0018 - NY Only

Uniden M/A Com Intersat Gensat Houston Tracker Winegard Conifer Laux Orbitron Kent Surveyor

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tained adequate service facilities even though the ultimate price to the consumer was slightly higher. This ruling applies only if a manufacturer has less than a 10% share of a market. And this now means that TVRO OEMs have **one less excuse** as to why they are 'forced' to deal with TVRO mail order houses: according to the Supreme Court they no longer must do so.

Henri Guerin New Mexico Satellite Rt. 9, Box 86DD Santa Fe, NM 87501

We were not aware that OEMs used this 'excuse' to explain away why they were continuing to sell to mail order houses who essentially compete with dealers at the local level. Anybody else have any comment on this?

REGARDING NTSC to SECAM Conversions

There are order of magnitude differences between conversions of (a) SECAM to PAL and (b) SECAM or PAL to NTSC. The difference between PAL and SECAM exists only in the color modulation of the color subcarrier and the necessary recovery in the TV receiver, because both systems operate with the same line and field scan frequencies. Black and white in each format will play in a receiver designed for the other format with no problem. But when you put NTSC into the equation, you are now transcoding from 525 lines and 60 fields to 625 lines and 50 fields, or vice versa. And that's before you tackle the differences between color subcarrier modulation. What has to be done is that you must 'store' about 1080 elements per line times 50 or 60 fields with a good description of the gray scale value for each of the three colors; R, B and G. If you store on either PAL or SECAM, you then have to read it out in NTSC (different horizontal and vertical frequencies) or vice versa. The whole mess requires either megabytes of storage/information capacity or like they used to do it in the old days 3 black and white displays with close control of gamma, scanning and lots of other parameters and finally using three video cameras to create R, B and G for the new scan rates and ultimately encoding it back to the desired color standard. With the above breakdown and adequate compensation, you can get rid of the flicker but you are talking upwards of \$20,000. This is an old problem and if you recall the 1950's fight between RCA and the CBS (color wheel) systems, transcoding was used then for comparison tests and it was not cheap either. Perhaps, after digital TV sets get into large scale production and big storage capacity becomes more common, it will be time to retackle the problem. I hope this helps.

> Kurt Oppenheimer Satellite Communications Corp. Drawer C Winnisquam, NH 03289

Kurt is responding to our Coop's Comment plea for a basic explanation of why the PAL or SECAM to NTSC conversions remain so expensive. He did an excellent job and it looks like we will have to await, as he suggests, the large explosion in digital TV receivers (with their inherent storage capacity) to sort this one out. Drat that flicker on Gorizont!

DEHNERT And Korean Rabbits

While perusing your palpably perspicacious CSD/2 for December 15th, I became ensnared by a rather ragged rent in its fabric of credibility. The lapse to reality to which I refer is imprinted on page 24 of that missive and I thought I might provide your readers with a more factual account.

The trademark **TOKI** was not, in fact, adopted to make the product 'sound Japanese' as USS's **Doug Dehnert** suggests. I am well aware of this because I was hired as a marketing consultant in September of 1983 to help develop the name.

J.B. Yim, the company's President, wanted to say TOKY: the Korean word for rabbit. This was to allude to the Korean myth of the 'rabbit in the moon' (as we have our 'man in the moon'). He assumed this was an universal concept. Since the products are satellite receiving equipment, he felt that the reference to the moon, Earth's first satellite, was appropriate.

I encouraged him to spell the name with an "I" (TOKI) because I felt that Toky sounded too much like TokAy, a cheap wine. Together we created an all-capitals logo with a rabbit head inside of the letter "O" and this eventually was modified to the logo the company uses today. The company was finally incorporated as KOSAT International, using TOKI as the trade name, because it was discovered at the last moment that there was another Toki corporation in California, owned by a Mr. George Toki.

Even though we Americans think of rabbits as rather timid creatures, the Korean strain is another breed entirely. Korean rabbits are vicious creatures, to be treated with great caution. There is speculation that their ferocity is caused by the accidental ingestion of KimChee, the famous Korean 'Seoul' food, which is buried all around the countryside as part of its aging process.

Korea is noted for its plethora of guard rabbits, attack rabbits, and fighting rabbits (although rabbit fighting was recently outlawed in one province after the winning brute ran amuck with blood lust mauling 17 spectators beyond recognition).

Some say that **Watership Down**, the novel about rabbits taking over the world, was actually written by an obscure Korean author and not by William Shakespeare. Finally, when Koreans traditionally visualize the outline of their whole country (north and south together), they 'see' the silhouette of a rabbit standing upright.

All things considered, when my friend Doug Dehnert worries about that boatload of rabbits again, he should be relieved to know that they are not the 'mating kind'.

John Stover General Manager TOKI/ KOSAT International

Doug Dehnert's mother was once frightened badly by a Manitoba rabbit which slipped undetected across the border into Minnesota. John Stover's mother routinely serves young John Welsh Rabbit for dinner each Sunday.

AN OPEN LETTER TO SATELLITE DEALER MAGAZINE

Unfortunately, your "Special Report-BR Satellite: Alive and Well?" has all the flavor of an exposé in the National Enquirer where fleeting dissertation of fact, half-truth, and outright inacurracy all come together at your whim for the sole purpose of having something to say without any regard whatsoever for a carefully presented package of totally truthful statements.

Your article starts off by stating "The story of Ben Rose's trial and conviction . . . " and goes on to report "for his part in unravelling the crime, Rose bargained for a reduced sentence."

Firstly, although indicted by the Southern District of New York in January of 1982, I NEVER went to trial as a defendant and was NEVER convicted on ANY aspect of this case.

As I told you in a personal interview by telephone, while under this indictment, I learned of Witt's plot to murder the main government witness in the case, Dr. Ronald Asherson. Immediately on hearing of this, I went to the United States Attorney's office to prevent this from happening. As a result of the US Attorney being convinced that I had, in fact, saved Ron's life, I was asked to become a government witness myself and plead guilty to 5 counts of the pending 119 count indictment.

In August of 1982, I signed my cooperation agreement with the government. This agreement stated that I would testify truthfully in all matters requested by the government and in turn at the time of sentence, the US attorney would write a letter to the judge informing him of the extent of both my actions and my cooperation with NO GUARANTEE as to the outcome. At that time, the judge would weigh these factors and make his own determination as to my sentence. This all took place in a Federal Court of Law with the rest of my life hanging in the balance — not on "LET'S MAKE A DEAL."

Because of the extent and fullness of my cooperation, and my saving of another man's life, I am serving a total period of seven months duration on a nine month sentence. This is the judge's interpretation of my culpability in this situation as opposed to the sentences imposed on Witt, Ellentuck, and Rosenberg, who received sentences of 15, 13 and 10 years respectively. It is also noteworthy that the other government witness, Dr. Asherson, whose life I saved, served a full six

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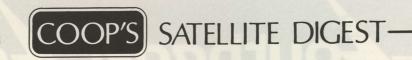
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months for his illegal participation as figurehead of the medical center.

Because of very real threat to our lives, the judge ordered that Asherson and I be admitted to the Federal Witness Protection Program to guarantee our safety while under the court's jurisdiction. Every night, I thank the Lord that I found the courage to put a human life above any personal hardship, and find great peace and solace in the knowledge that Ron Asherson is alive and well, rather than the victim of an assassin's bullet.

In response to your report of relations between BR Satellite and its suppliers, I will not comment with regard to ECI because of pending litigation except to say that your statements are grossly inaccurate.

But in regard to the Wilson/BR relationship, I will go much further. Your report is not only incorrect, but represents out and out lies by Wilson Microwave Systems and conveniently never addresses the real issue.

Firstly, the real facts . .

BR Satellite NEVER asked Wilson to extend the credit limit over \$100,000. On hearing all sorts of rumors about my situation and without determining the facts, Wilson closed our open account, even though at that time we were paid in full and did not owe one single penny to Wilson. Since they would not ship to us on open account, we came to an agreement and shipped them 200 Norsat LNAs for which they were to send us receivers. After the receipt of our LNAs, Wilson conveniently became back-ordered on their receivers, thereby hurting our dealers who were depending on getting this product. These receivers were not shipped for over 40 days after the receipt by Wilson of our LNAs. During this one-sided exchange, Wilson did and for that matter still does owe BR over \$12,000 in past due advertising monies. To make matters worse, sales people at Wilson were informing BR customers, who had called to find out why BR had no Wilson product, that they should look elsewhere for a distributor as BR was no longer a distributor for Wilson and was on the verge of bankruptcy

Nice going, Jim and Shondra Wilson — one would think that after the horror of your tragic fire that you would have learned the meaning

of compassion.

Quite frankly, BR will no longer accept merchandise as payment for the Wilson advertising debt as I refuse to subject my dealers to any more Wilson Receivers. Our warranty service department shows that they had the most costly failure rate of any product carried by BR. That, Mr. Ardinger, is the reason for the break between Wilson and BR, not any non-existent financial problems.

With regard to Joe Valentino, Joe sold me my very first satellite

system, (it didn't work), and got me involved in our industry. When rumors besmirching his character were circulated in the industry, I gave him credit when no one else would. When he found it impossible to pay me, I forgave his debt and charged it off to friendship. When things got really bad for him, I gave him a job amid tremendous pressure and flack from the industry. He needed help and I outstretched a hand. During the few months that Joe represented BR, he cost the company \$13,311, and during this same period, he generated only a few thousand dollars in gross margin for BR. For the period of Joe's tenure, Joe worked out of his house and therefore could not witness the flow of inventory. Inventories actually increased for the fall season and only ECI and Wilson were in short supply for the reasons stated above.

With regard to the relationship that exists between BR and MTI, it is truly unfortunate that you find it newsworthy to give literary credance to the few slack-jawed bigots of our industry by printing their assinine comments.

MTI and BR have grown together. Royal Lamb and myself have worked hand in hand since March 1983 in a model of a manufacturer/distributor relationship. Our mutual support has made us one of MTI's largest distributors, and has established MTI as a premium quality manufacturer. We are both very proud of this accomplishment.

In closing, you will remember my requesting only two things of you

1) To be sure of all your facts and verify them with the court, Mike

Stevens or myself before going to press,
2) To please thank all of my dealers and all those people who have supported me, my family, and BR Satellite during this very

have supported me, my family, and BR Satellite during this very difficult period with special mention to Royal Lamb, Jim Pendelton, and Enriquez Moreno of MTI, Chris Schulteiss and Doug Brown of Satellite TV Magazine, Walter and Connie Everett of SRS, Rick and Gloria Schneringer of STTI, Rick Brown of SPACE, and Rod Wheeler of Norsat, for friendship above and beyond the call of duty.

I regret that you found these two simple requests too difficult to fulfill.

BEN ROSE
President
BR Satellite Communications Inc.
35 Lumber Road
Roslyn, NY 11576

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Ben Rose's comments are in response to an article appearing in Satellite Dealer Magazine concerning his company.

TRANSPONDER WATCH

RECENT REPORTS OF ACTIVITY ON DOMESTIC / INTERNATIONAL SATELLITES

Send your reports to CSD Transponder Watch, P.O. Box 100858, Ft. Lauderdale, FL 33310. For late news, call (305) 771-0505.

At press-time, latest HBO plan was to initiate partial-day-scrambling on Cinemax West through March 29th period to test whether the 450 Cinemax-West affiliate decoders were working properly. If that test passes without incident, HBO wanted to scramble Cine-West full time effective March 29th. Next scheduled partial-day testing would involve Cine-East and HBO-West which could begin tests April 15th. After two-week test period, if HBO affiliates were able to sort out problems with VC2C descramblers, HBO would then scramble those two services (end of April) full time. HBO-East will not scramble before September 1st or until HBO has marketing plan for home terminals in effect; whichever happens 'first'.

FRENCH Telecom 1B plus (US) G-STAR 1B birds next due up on Ariane launch vehicle late April (23rd scheduled). Testing now nearing completion from mid-February launch of Brasilian SBTS-1 and ARABSAT (1) birds.

TVRO Dealer Jeff Manion of Wichita, Kansas ('Starlink') pleased with initial outcome of case brought against his dealership by Wichita cable system. Judge ruled Cable Communications Act of 1984 ('Satellite Viewing Rights') 'clearly was enacted to specifically protect enterprises such as Starlink'. Countersuit, brought by Starlink through SPACE, continues with Starlink seeking damages.

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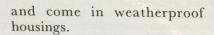
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Other accessories include line driver amplifiers where additional signal strength is needed, and power dividers for systems with more than one receiver.

On your next order ask for Avantek LNAs. They're designed to give your customer the finest performance possible. Forever.





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FCC has decided that Ku band bird permitees who have not followed up initial FCC grants with 'action' will have permits lifted. Rainbow (assigned 79 and 132 west) and Usat (assigned 85 and 122 west) were initially hit and more are expected.

NASA officials concerned over cost effectiveness of Shuttle Versus European Ariane launcher. Ariane is less expensive and Shuttle/NASA program more frequently unable to 'compete'; some are suggesting that NASA 'get out of' commercial launch business totally.

CNN's new European feed now scheduled for September 15th turn-on via Intelsat V bird (see Coop's Comments, this issue) will use 1/2 transponder format with Turner reserving second half of transponder for future growth.

ECHOSPHERE Corporation, major TVRO distributor, owns 30% of new application for Ku band DBS service; 'Antares' filed FCC application which proposes twin 12 channel DBS birds. Balance of new applicant firm is owned by United Cable Television (60%; major cable TV operator) and A.B. Hirschfield Press, 10% holder and best known for **Channel Guide** publication.

FRENCH Telecom 1A bird finally radiating C band signals to west; test signals at apparent levels of 28 dBw reported widely by scattered east coast and Caribbean area observers. Satellite is located at 8

INTELSAT has approved use of U.S. Domestic satellites to carry certain services into regions such as Caribbean, Latin America and Canada. Services on Comstar D4, Galaxy 1 and 3, G-Star 1 and 2, Satcom 1R, 3R, 4 and 5, Spacenet 1 plus Telestar 3(A) and Westar 4 and 5 were approved. This means that downlinkers in affected areas can expect expedited approval through their local governments and FCC for permission to utilize services on these birds on 'international basis' provided the services involved are willing to be so used.

M/A-Com has demonstrated 1.8 meter Ku band data terminal which will sell in \$11,000 region. Kicker is that these small 'field terminals' will have to operate into 'hub terminal' which may cost upwards of \$1,000,000.

FEARS that Western Union may be having severe cash problems denied by satellite operator. WU recently lost \$100M 'line of credit' at major bank and asked employees to take voluntary 10% pay cut.

INDIA is latest country to seriously consider becoming a part of Russian Intersputnik network. Russia is aggressively courting national communication network systems 'selling' transponder time at rates believed to be as much as 35% lower than comparitive Intelsat rates.

OKLAHOMA City high tech firm ESI (Electronic Systems, Inc.) has designed color camera surveillance system being installed on oil drilling rig in Bering Sea. Unusual part is that oil company operator will pan, tilt and adjust camera remotely from office in Tulsa and view activities on oil rig on satellite feed uplinked from Bering Sea.

FCC's latest study of C and Ku band bird 'activity' showed improvement in C band bird use and decline in Ku band use. FCC conducts quarterly 'spot check' studies to determine how transponder loading is growing as new satellites come on line and older ones

U.S. White House adding pressure to FCC and Congress to revise current FCC rules which require most users of Intelsat, from within USA, to first 'access' Comsat domestic facilities for linking to Intelsat. White House urging 'direct access' of Intelsat, bypassing Comsat up and down links and thereby cutting costs associated with using international satellite system(s).

CORONET project, originally proposed as 11/12 GHz DBS type service with 16 'medium power' transponders, in further trouble. Belgium government has been under intense pressure to stop project which was created by US consultant working with international investors. Entire project appears to be at watershed point and will either sink or swim in next few weeks.

BRITISH military said to be proposing new satellite for 52 east but issue is confused by official denials at all levels and statement by Ariane officials that they will not launch a military type bird for British.

HBO continues to draw flack from wide variety of press and economic analysts over their slow rate of growth and apparent inability to announce a 'solid plan' to market their services to C band terminal owners.

CONSUMER Electronics Show scheduled for June 2-5 in Chicago making major 'push' for TVRO industry participation. Winter Show in

Las Vegas registered 101,000 visitors with modest TVRO interest.

ANALYSIS of 'SMATV Legal Position' available from National Satellite Cable Association (918 16th Street NW, Washington, DC 20006 [Suite 702], 202/659-2928). Excellent reading for anyone involved in SMATV system installations.

HOMESAT is back; Scientific-Atlanta which registered name under trademark in 1979, after trotting out first \$36,500 home terminals in spring of that year, hopes to be able to retail home systems using dish slightly over 9 feet in size, for around \$2,500. S-A tested system through Georgia rural electric co-operative plan late in 1984. Systems will be sold through 'strong dealers' and will bypass industry distributor network.

HBO gave and took away with same announcement; stating they would 'now sell to SMATV systems' (previously HBO would not deal with SMATV systems) and then saying that SMATV operators would order HBO service 'through their local HBO cable affiliate'. Marketing plan seems nearly identical to HBO plan floated to sell to home terminal operators; placing cable affiliates in middle between consumers/dealers and HBO itself. SPACE is expected to use this announcement as major plank for its own platform before Congress and Department of Justice arguing that HBO's activities are anticompetitive.

WGN move to Galaxy 1, transponder 3 on March 1 has been in works since last summer. WGN carrier United Video wanted off of F3R fearing that as more cable firms switched to G1 bird, that ultimately their 'cable circulation' would fall if they remained on F3R. F3R feed on TR3 was to have continued until last week in March only.

ARTS is now available only on TR24 of F3R, having dropped Westar V feed and TR1 evening feed on F3R.

systems for two weeks from ECS-1 and then stopped. Belgium authorities literally padlocked TVRO systems installed by cable firms after Eutelsat organization complained that Italy was paying only 'national distribution fee rate' for use of ECS-1 transponder. Under rules, any country using ECS-1 for 'international distribution' of programming pays a 33% premium for such use. Italy's ECS-1 channel was officially only for 'test' purposes internally. Belgium viewers reacted immediately with petitions containing thousands of signatures and negotiations are underway to get RAI back on Belgium cable systems.

CHINESE are working with French and officials from Ariane to develop their own internal capability to launch satellites and to create a re-useable space vehicle similar in concept to US 'Shuttle'.

TELESAT's ANIK C1 satellite is 'resting' at 107.5 west after launch. Canadians had attempted to sell satellite prior to launch, finding its capacity was no longer required. When sold, bird can be moved to orbital location desired by user.

WORLDNET, operated by US Information Agency, now operating 5 days per week, two hours per day with one hour of 'interactive' service two days per week. Project places US policy makers at disposal of world journalists for video conference type interviews (see CSD for November 01, 1984). Under recently signed pact with Eutelsat and French, ECS 12GHz transponder will downlink throughout Europe and more than 60 'US Embassy Terminals' are to be installed this year. Moscow terminal is already operational.

TDRS-A satellite of NASA will 'retire' this fall after approximately one year of service, when TDRS-C bird is launched. 'A' bird was placed into improper orbit initially and thrusters normally used to maintain station keeping position were pressed into service to get bird into Clarke Orbit. 'A' bird is presently at 41 west and is occasionally seen with test signals in C band region. Recently launched TDRS-B bird is at 171 west.

LONDON FINANCIAL TIMES will begin satellite transmission to New Jersey printing press plant in July via satellite. Presently, some 8,000 copies are flown daily from London to US for distribution.

WOULD-be Ku band DBS programmer Dominion Video says it will probably elect to use Scientific-Atlanta 'B-MAC scrambling and transmission system'. This is the digital multiplexed analog component (B-MAC) system. Dominion plans a combination of 'family' and 'religious' channel services using a pair of Hughes satellites scheduled for 1988 launch.

FCC reacting to 'failure of DBS permitees to arrive at standards' by

Inclusion book pre-vision (No control Servision Add Servision Available)

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PROVEN PRODUCT

During the past two years, the Gentek programmable positioner has logged tens of thousands of operating hours resulting in many modifications and improvements. This, coupled with last years' incorporation of an actuator manufactured by Von Weise Gear Company has provided the quietest, smoothest, most accurate, microprocessor based positioner system on the market.

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Included with each system is the motor boot, the tube bellows, the mount kit, pre-wired connectors (meaning no soldering or splicing) and the cable. (No cable is an option with us!).

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FOR FURTHER INFORMATION CONTACT

GENERAL TECHNOLOGY APPLICATIONS, INC. 8900 N. INDUSTRIAL RD. PEORIA, IL 61615 (309) 692-5631





suggesting that Commission set standards for DBS. Rulemaking now out for comment includes question on whether all receivers should be equipped for reception of 'clear' (non-encrypted) transmissions along with individual operator's encrypted formats. Concern is that if only encrypted format receivers are produced, those programmers electing not to encrypt (and be commercially supported) would have difficult time in marketplace.

USERS of Eutelsat F3 bird (due for launch this summer) have been identified; they include (1) Turkey for 1 channel on spotbeam east, (2) Spain for 1 channel on spotbeam Atlantic (Canary Islands), (3) United Kingdom for 2 spotbeams west for cable program distribution, (4) Italy for 2 spotbeams west, (5) Denmark for 1 spotbeam west for an 'all Scandinavia TV network', (6) Sweden for 1 spotbeam west for an 'all Scandinavia TV network', and (7) Norway for 1 spotbeam west for distribution of TV programs to oil rigs offshore.

NOSTALGIA Network featuring 1920-1950 era movies on D4 plans to develop into 24 hour per day network May 1st. Service is uplinked from Dallas and is aimed at cable affiliates.

TAFT BROADCASTING's Electra **teletext service** is now operational on WTBS vertical interval in place of ill-fated SSS teletext service tested last year. Electra is compatible with newer Zenith TV sets with built-in decoders as well as external decoders. The 100 page format system is originated at Cincinnati's WKRC-TV.

SPACE intends to press legal questions arising when local cable firms are designated as 'exclusive agents' for services such as HBO to home TVRO owners. SPACE feels that conflict arises when TVRO owner, within city area where cable is available, wishes descrambled HBO or Cinemax service and cable operator insists that TVRO owner ALSO take cable service as condition to being sold a C band descrambler.

MOTEL in Edinburg, Texas may have been first to feel legal repurcussions from Cable Communications Act of 1984. Echo Motor Hotel lost in Brownsville court and HBO and others were awarded \$40,000 in damages for alleged 'pirating' of HBO and other signals from satellite. Case centered on local Heritage Cable firm allegations that same services were available from it, on cable, but motel elected

to 'steal signals' from satellite in lieu of making payment to cable firm. Court awarded permanent injunction prohibiting motel from "ever again pirating any cable services offered by Heritage Cable . . .". Bottom Line? Don't install TVROs where cable operates and if you do, make certain motels do not use or carry for distribution any services offered on the cable system.

GRUMMAN Corporation has signed deal with NASA to test manufacture of much-needed Gallium Arsenide 'in space'. Material is vital in creating ultra low noise amplifiers (GaAs-FETs) and some 8 experiments will be flown by Shuttle missions to test creation of material in non-gravity environment. 1987 is scheduled end of test period.

RUSSIA is moving ahead with 'Lumnetta', a project to create an 'artifical moon' (or moons). Idea is that large reflectors stationed in space with a reflective surface of at least 110 square meters would catch sunlight and reflect it back to earth so that 'nighttime vision' would be improved to approximately the same level as during a 'full moon'. The target area on earth would be about 10,000 square kilometers.

UNIDEN used New York City press-conference setting to announce that it plans to capture 50% of anticipated home TVRO receiver market in 1985. They also claimed to have sold 35% of all TVRO receivers bought since their September entry into marketplace.

HIGH cost of space vehicle launch insurance is subject of Ariane launch group study; Europeans say that failures associated with **Shuttle launches** in past year have driven up launch insurance costs while the Ariane launched customers are being penalized.

WESTAR 6 and Palapa B birds, rescued from space by Shuttle crew, will apparently be re-sold for around \$32M each. Identity of customers still 'secret' but possible re-launch of one or both birds for customer use late in 1985 is likely.

GERMANY'S lease of 3 full transponders, capable of supplying six video signals to cable and SMATV systems, on Intelsat V over the Indian Ocean, is having positive impact on growth of cable television in Germany. The higher power signals are currently being received at 72 cable headend locations with an equal number planned for expansion by the end of 1985.

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- With over 5,000 installations throughout the country, the lightweight XL10T tripod roof mount by Microsat is quietly becoming an industry standard.
- We have proven how easy a 3 meter antenna can be roof mounted. In fact, because of its light weight — only 80 lbs., it may be easier than ground mounting.
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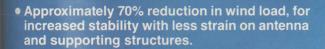
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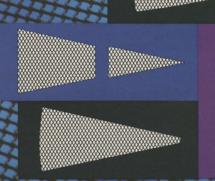


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(In Illinois: 1-312-362-8300)

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SCIENTIFIC-ATLANTA has signed a contract with Holiday Inns to change out the HI 'Hi-Net' communications system from the present C band to Ku band. More than 1,500 HI locations will have direct Ku band access to between 4 and 6 video service channels including news, sports, movies and a new pay-per-view 'first run movie' service. Holiday pioneered in-room satellite delivered movies (HBO) in 1978 and has been toying with an upgraded and more complex Ku band service for nearly one year. The first terminals will be installed before summer.

GROUP W will supply uplink facilities to transmit four CBS-TV network service channels to Telstar 301 and 302 birds. CBS is expanding during 1985 and 1986 and hopes to have the majority of its

network affiliates interconnected via satellite by the end of 1986.

NBC, meanwhile, has cut its terrestrial links on microwave to virtually all of its 170+ affiliates, relying totally now on the SBS Ku band services. C band service for a single (east coast) feed on F1R continues as a backup.

CURTIS-MATHES, famous in the TV receiver field for its 48 month warranty, has upgraded their entry level TVRO system package from Amplica to also be a 48-month-covered system.

RCA has received FCC permission to jump from 20 to 45 watts the output power on its 3 under-construction Ku band birds. Other recent applicants to the FCC have been requesting 100 watt output power levels at Ku band.

COOP'S COMMENTS/ continued from page 5

show me specific examples of receiver performance that will NOT descramble using the VC2 family of units, I am going to take the position that virtually any receiver out there can, in fact, handle the Linkabit scrambling format. And that is, of course, contrary to what we have been force-fed as 'gospel' for the past 9 months or more.

Seemingly with every new revelation concerning scrambling, HBO and their M/A-Com 'connection', the less we really know. Meanwhile, as this confusion continues, we have the 'PR people' at HBO going to work to make life more and more difficult for our industry.

HBO functions through a 'regional office' program and each of the Regional Office Managers has certain latitudes he can take in dealing with HBO 'sensitive issues' within his region. Of late, many of these HBO people, perhaps on their own and perhaps at corporate direction, have been 'buying space' in the media. They have been able to do this without spending any real money because they are sitting on a 'news-gold-mine' and they know it. An example appears here, from the **Amarillo** (Texas) Globe-Times. HBO's **Larry Lauck**, out of their Dallas regional office, hit the **Globe-Times** twice within one week; first by supplying 'information' to the newspaper's '**Ask Adam**' column and then by tieing the installation of a VC2C unit at the (Amarillo) cable system headend into a further discussion of 'home versus cable' terminals. One quote from Lauck is interesting:

"(scrambling) . . . is simply a matter of protecting our product and being able to remain profitable. We realize that many people need a satellite dish to receive quality programming of any sort and we have no quarrel with these people. It is the individual who purposefully receives our signal without paying for it, while living in an area served by a local cable system, whom we oppose. By scrambling our signal and possibly offering individuals a decoder, we will help our rural customers stay within the law and still protect the integrity of our product . . .".

The wording here is of interest. First, Lauck draws a line between somebody who lives in a rural area (where no cable is available) and somebody who lives where cable service is available. He ALMOST says that if a TVRO customer lives **inside** a town **with cable**, the customer is engaging in some sort of illegal activity by buying a TVRO. Almost. That of course swallows well for the cable operators who still have this mistaken belief that their municipal 'cable franchise' is some sort of **exclusive license** to be the **only** entertainment medium in that town

Next he speaks of helping "our rural customers stay within the law". The only rural 'customers' he could be referring to here are those TVRO owners who live where there is no cable. Isn't it interesting that he calls them "OUR rural customers". I always thought a customer was somebody from whom you accepted money for goods or service. How HBO can believe that rural TVRO owners are yet 'our' (or their) customers when they continue to refuse to accept money from these people is beyond me. This impresses me as a very 'patronizing statement' and HBO would do well to correct their English before they agitate any more of their 'potential customers'.

Apparently some of the TVRO retailers have decided that HBO can go fly a kite; they don't want anything to do with HBO and their plans to somehow 'offer' service to 'rural customers'. For example, there is **Clarence Jones** who owns **S.C. Satellite Wholesalers** in

Santee, South Carolina. Clarence also happens to own a radio station in Santee and he has been using his radio station to 'educate' his listeners about the 'truth' of this scrambling issue. An example of one of his 'public service' radio spots appears here. He starts off with:

"So you have heard rumors HBO and Cinemax are going to scramble? Who cares?"

Jones says, "I don't believe scrambling is going to hurt my business one bit. Frankly, because HBO and Cinemax intends to create a monopoly with the cable firms first, I intend to do all in my power to not have anything to do with descramblers. In the long run, scrambling and the monopoly between M/A-Com and HBO could backfire and prove to be one of the most costly mistakes HBO ever made".

Well, they've made some dandys through the years and it would not be a surprise to see this one backfire. There is certainly a growing resentment with the TVRO ranks of HBO and whether M/A-Com

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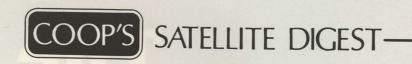
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Update: HBO Signal Scrambling

I've heard that HBO plans to scramble its signal soon. Is that true? What does this mean to satellite dish owners?—L.C.M.

According to Larry Lauck, affiliate public relations manager for Home Box Office in Dallas, HBO is currently testing a scrambler system with its 10,000 affiliates. The system will probably be

bler system with its 10,000 aminates. The system will probably be operational in June.

Lauck said that this is in response to Congress' Cable Deregulation Bill, which states that it is not illegal to receive a descrambled signal from a satellite, but it is illegal to receive a scrambled one and attempt to descramble it. HBO is currently studying the possibility of leasing descramblers to satellite dish owners, but an announcement on this will not be made for several more months. The Movie Channel and Showtime are studying the possibility of in-

nouncement on this will not be made for several more months. The Movie Channel and Showtime are studying the possibility of installing a similar system if the HBO project is successful.

According to Lauck, having a satellite dish is not illegal and is necessary in areas not served by cable systems. The HBO scrambling program will assure that the premium service can continue to operate profitably and protect its product.

For more details, Lauck can be reached in Dallas at (214) 387-8557

ASK ADAM/ from the Amarillo (Texas) Globe-Times lays out the 'official HBO position' to a concerned citizen.

realizes it or not, by being associated with HBO in this one, they are not doing themselves any favors with the TVRO marketplace. I wonder when they will awaken to that fact?

Then there is the 'top level' stuff in this area. At least a few business people believe that HBO will fail in their program and that if HBO fails, there will be a significant marketing opportunity opening up for somebody else to 'package' scrambled services for home use. SPACE's Rick Brown seems intent on pushing HBO into court or before the Department of Justice for what he calls 'horizontal integration'. That's not a southern phrase; it means that if HBO and Showtime and others in the cable programming business get together to create a programming package, the very act of getting together suggests 'price fixing' and 'elimination of competition' between natural competitors. Those who viewed the Boresight program on March 28th heard Brown talk about this.

If HBO is unable to field their own package of home services, is the whole concept of scrambling dead? Not quite. That merely means that somebody having no commercial or business ties with the creation of the programming will be able to step in to become a middleman/ distributor of programming. Several have tried or are trying as you

Almost any of the non-premium suppliers will agree to allow somebody other than HBO to package their service, with others, for resale. But the premium suppliers, such as Showtime/The Movie Channel, are following the pathway being hacked out by HBO, and HBO is insisting that it will be the leader in this program and then allow' others to join it. Some of the top people at Showtime/The Movie Channel have been sucked into this scenario and as long as they are blindly following HBO's lead, we have SPACE nipping at their collective heels waiting for just the right statement or reaction from the premium programmers to haul them into court on anti-trust charges. A top guy at The Movie Channel recently confided "We are joining with other premium suppliers to handle the distribution rights AND decoding equipment ourselves." He also muttered something about not getting enough profit out of the service (i.e. direct to homes) if



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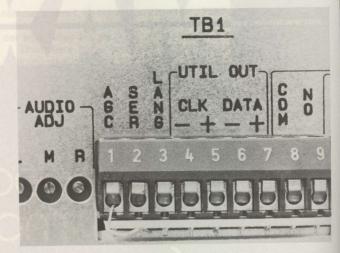
some 'third party gets involved'

The issue is complicated by the pricing structure that is practical in direct-to-home satellite delivery. SPACE seems to feel that there is a 'double threshold' around \$20.00 per month, if that \$20 pays for a half dozen to nine services. But if the package consists of say HBO Cinemax + Showtime + The Movie Channel + Disney, even at the CATV wholesale rate of \$4 per home per month, you've eaten up \$20 in retail dollars before you even factor in ESPN, WTBS, CNN, CBN and others who might be a part of this package. And, can a system without MTV be marketed profitably? MTV, unlike the rest, is stuck over there on F3R for the time being.

And so far, if you can take them at their word, none of the premium suppliers seem at all interested in selling to homes at the 'CATV wholesale rate'; rather they insist they will sell only THROUGH their cable affiliates and naturally the cable affiliates are going to mark up their \$4.00 wholesale rate to something closer to their \$9 (\$10) retail (cable) rate. So there is a basic problem with 'the numbers' on top of every other problem.

HBO is the programmer 'point firm' in all of this: they have spent the most bucks and the most time on trying to figure out some way to make a business out of the home TVRO marketplace. It also happens that they are the brightest and most experienced people in the premium cable programming field so their experience means a great deal to the balance of the premium programmers.

The way I read the HBO 'attitude' right now is 'sour'. They are still angry about the way they feel they were 'dumped upon' in Dallas at the SPACE board meeting which they addressed, and internally all of this talk about 'anti-trust suits' and 'taking them to court' gives them a very unpleasant feeling about this industry. I believe that they believe they would be doing us 'a favor' by creating a marketing plan which would make their programming available to our customers. I also believe

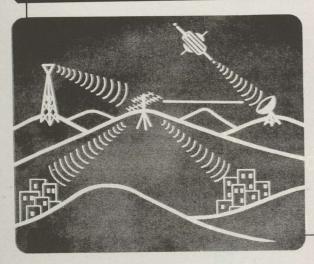


they expected to be 'welcomed as saviors' by our industry and they still do not understand why there is so much hostility between HBO and this industry

M/A-Com, meanwhile, has been calling some of the receiver suppliers, through their LinkAbit subsidiary, to tell them how the receivers sent to LinkAbit perform with Videocipher. I understand that at least three major brand receiver suppliers (three of the top seven) heard from LinkAbit back in late February. This group of three were told "Sorry, your receivers will not work with Videocipher." We had some luck locating these particular receivers for test ourselves and we'll tell you about that on April 15th. After scaring the crap out of

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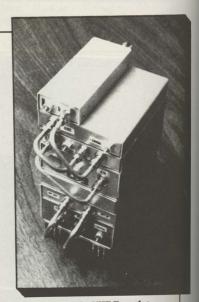
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this trio of suppliers, it soon became evident that M/A-Com may be up to a new 'angle' in their campaign to totally control the descrambler universe. You may recall that the original concept for descramblers was that if your receiver could provide unfiltered and unclamped baseband video to the Videocipher descrambler, and your video was sufficiently 'pure,' you should be in business. The industry eventually realized that if M/A-Com offered receivers with 'built-in' descramblers for just a few bucks more than a stand alone receiver, while everyone else was forced to offer their stand alone receiver plus a \$300 price range descrambler, M/A-Com could have a tremendous price advantage in the market.

This price advantage would hold only as long as people didn't start selling TVRO receivers for \$100 or so. But as soon as that started, a \$100 (or \$200 or even \$300) receiver plus a \$300 descrambler was going to be less expensive than a M/A-Com receiver with the descrambler built in. So M/A-Com, I suspect, had to refigure out how they could maintain that 'price advantage.' Naturally they would like to continue to ship T1 and H1 family receivers to dealers in the top-end \$800 price range since they make great money at this price level; even if they have to 'throw in' an inboard descrambler in the

So a new proposal surfaced. Now M/A-Com might not supply outboard descramblers at all; they simply would not offer baseband input descramblers. In place of baseband input units, it is now suggested that M/A-Com will only supply a 70 MHz input unit. If you take that literally, that means they will replace the entire indoor portion of everyone's package with a M/A-Com unit; 70 MHz, scrambled video in, and, unscrambled remodulated video and audio (or baseband video and audio) out. Suddenly M/A-Com becomes the only company supplying indoor receivers at all!

This plan has been built around the use of a 70 MHz input. However, many receivers are no longer using 70 MHz. The BDC units have a higher IF and while they may end up at 70 MHz at some point



for their final IF, they don't come into the house at 70 MHz. Still others, such as Uniden, use 135 MHz, or USS uses 400 MHz. How would Uniden interface with a 70 MHz input box? Would M/A-Com create a 135 MHz input box so poor 'little Uniden' could continue to be in this business? Is this a bigger mess than it was last month???

This whole thing sounds like a lousy plot in a Grade B movie. As confused as HBO seems to be about when or whether, how and where to scramble, we have to grant to M/A-Com the ultimate award for screwing up the scrambling situation. And that's not all bad. The longer these people keep dreaming up off-the-wall plans to initiate a scrambled service, the longer it is going to take for any of this to happen.



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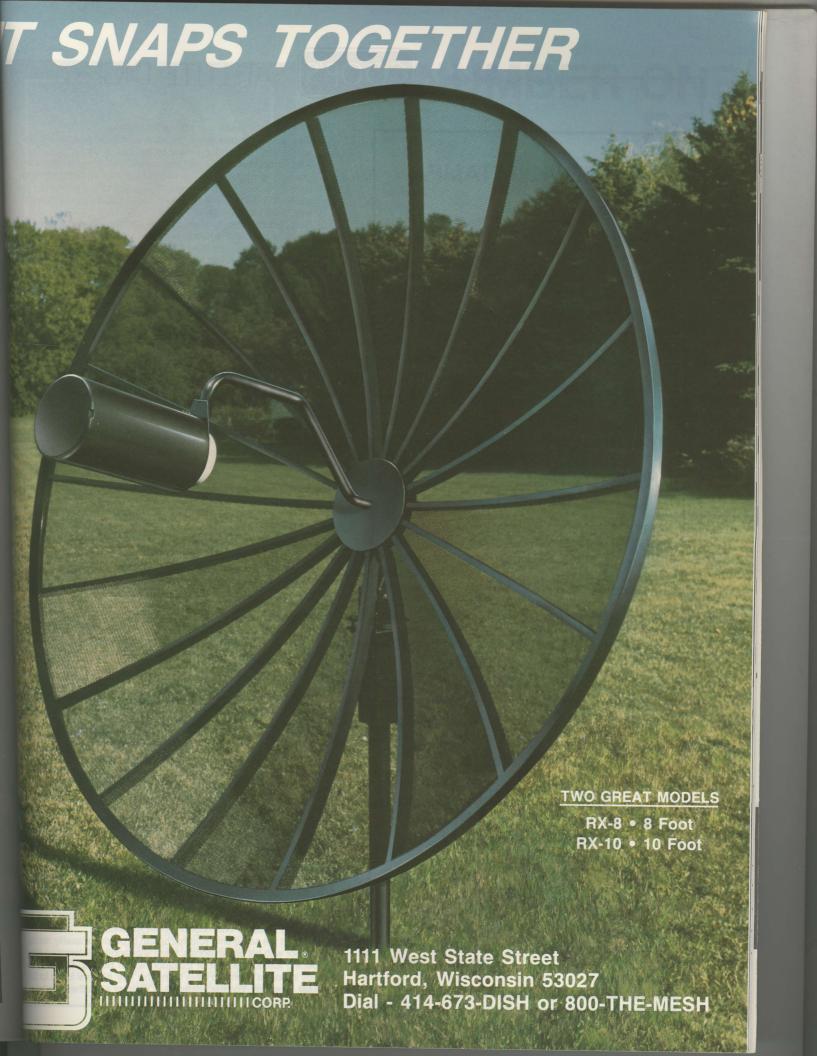
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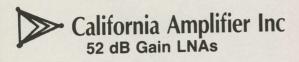
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So I have some unsolicited advice for them:

1) Get out of our business; go back to providing cable with its programming. Don't even try to market to us.

2) Allow somebody else, not associated with any premium programming supplier, to create one (or more) programming packages. And be a responsible supplier of programming to such a firm and treat them like you treat your other customers;

with understanding and dignity.

3) Suggest to your 'friends' at M/A-Com that they have also made a terrible marketing error in trying to force-feed their home-style receivers down our throats because of their 'insider position' in the scrambling system design. The resentment against M/A-Com is running very deeply at the moment and the longer HBO and M/A-Com stay in bed together, the more difficult it is going to be for M/A-Com to ever recover in this

As Clarence Jones notes "In the long run the monopoly between M/A-Com and HBO could backfire" and in the minds of a

great many TVRO dealers it has already backfired.

The alternative to this is simply that this industry, perhaps alone or perhaps with some outside capital, will create its own package of services which it will then feed to its own customers. If this happens, the day may come where HBO will find itself competing in the marketplace with a firm that started in 1985 'just to serve home TVRO users' but which grew into a formidable force in all satellite program-

Anybody who wants to do business with TVRO is going to have to recognize that TVRO is a 'maverick industry' with its own personality and its own leaders and policy makers. You can't walk in from outside and force your will on an industry composed almost entirely of selfmade people who have fought and battled for five years to pull themselves up by their bootstraps. Those who have tried, and those who persist in trying in the future, will be wasting both their own time and ours as well.

ECUADOR Re-Visited

Our March 01 issue report written by Ahmad Lee Khamsi drew some interesting responses, some of it 'official'. It seems that Ecuador as a country has been among a handful of nations which has used the presence of US 'domestic satellite signals' as an excuse to protest US use of the Clarke Orbit Belt. The United States, in attempting to enforce its internal 'copyright laws' on an international basis, has not been above coercing nations such as The Dominican Republic. Uncle Sam has tied 'fair use of satellite signals' to such things as economic aid for Caribbean and central American nations. If a country wants to be on the receiving end of such doles from Uncle Sam, it has to agree to enforcing US copyright laws within its own boundaries. The Caribbean nations have been especially targeted.

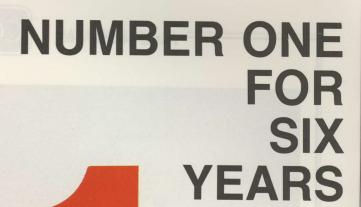
Ecuador takes an opposite position; that in its international negotiations and treaties, Uncle Sam has never formally 'asked Ecuadorian permission' to 'broadcast television into Ecuador' and under various UN resolutions adopted back in the early 70's, no nation is supposed to broadcast into another without the advance approval. Ecuador has also taken another interesting position through the years, maintaining that the Clarke Orbit Belt lays directly above Ecuadorian soil and this entitles them to 'rent' from other nations who

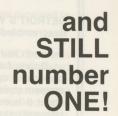
would place satellites 'within their air space'

Until Ahmad Lee Khamsi came on the scene, there had been no serious reception of US domestic satellite signals within Ecuador. Khamsi, as we reported on March 1st, has refined his antenna products (up to 13 meters in size) and his electronics to the point that anyone with the bucks can now enjoy 30 or so channels of 'quality' US (and Canadian) domsat reception from virtually any location in Ecuador. Khamsi has created a small but important local industry in Ecuador and even before his report appeared on the front cover and within the pages of CSD for March 1st, his fame had traveled throughout not only Ecuador but most of South America.

At about the same time Khamsi began to produce 'quality results' in Ecuador with his big antennas, there was another interesting thing happening just to the east of Ecuador; within Bolivia. To this date, nobody in Bolivia seems to have found the 'key' Khamsi found for US domsat reception. But the influence of Khamsi and others further to







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DETROIT'S WXYZ, carried on TR10 of ANIK-D as received and descrambled in Ecuador by Khamsi's 13 meter antenna.

the north had found its way into Bolivia.

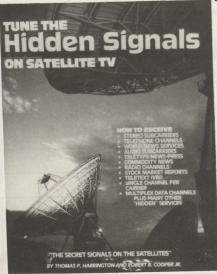
Bolivia has two types of television broadcasting; government owned and operated and University owned and operated. The government stations are concentrated in metropolitan areas and operate about 8 hours a day. They try, but are not very impressive. The University stations would in theory be 'educational' but they usually offer the best variety of programming since they are not under **direct** government control. However, the University operated stations are always short of funds and at best operate four hours per day. In both cases the programming is heavily filtered by the censors, either official or self imposed.



CANADA'S BCTV carried on TR18 of ANIK-D as received in Ecuador and descrambled by Khamsi's 13 meter antenna.

The first 'maverick' TV system went on the air in **Santa Cruz**, **Bolivia** around one year ago. There had been the discovery some two years ago that the Intelsat signals for Brasil and Argentina were exceptionally strong in Bolivia; that 12 foot Paraclipse dishes could produce a trio of channels from these two international feeds with excellent quality. It was inevitable that somebody would connect the output of a TVRO receiver to the input of a TV transmitter. The 225 watt channel 5 transmitter put on the air in Santa Cruz was first treated as a 'joke' and then as a 'threat' by the Bolivian government. The authorities made a fatal mistake by not moving to shut the transmitter down when it first went on the air. The operator was violating Bolivian

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law and he knew it. By the time the government got around to shutting him down it was too late; he had organized a 'TV viewing club' of several thousand avid supporters. When the station appeared doomed the local viewers rose up as a body and threatened the government with retaliation. Since civil unrest is often sparked in South America by passions far less deeply rooted than TV viewing habits provoke, the government backed down and not only allowed the Santa Cruz station to stay on the air; it actually gave the operator a license so he could be assured of staying on the air!

This immediately encouraged others to try the same approach and the next station to be created around Brazilian and Argentinian Intelsat feeds from a Paraclipse dish popped up in La Paz; the national capital. Operating on channel 9, this station quickly became a viewing fixture and the race for expanded television reception was on. Dozens of additional stations are now under construction and there is a TV 'free for all' happening in Bolivia.

Some of this has inspired a south Florida TV broadcast equipment supplier to package a complete television station in a couple of small containers which can be transported as accompanied airline baggage to virtually any location in the world. Frank Mestre of Continental Electronics (1620 W. 32nd Place, Hialeah, Fl. 33010; 305/822-1421) now is doing a land rush business with a 25 watt solid state transmitter package which includes everything a budding TV broadcaster will need less his TVRO receiving system and possibly his video tape deck. The package has a video/audio switcher, inter-connecting cables with 25 watt output transmitter, transmitting antennas and even 125 feet of feedline with connectors attached. Mestre even throws in a Bird Wattmeter so the operator can quickly see if he is getting his full 25 watt output, and if his antenna system is functioning properly. The price? \$3995 FOB Miami.

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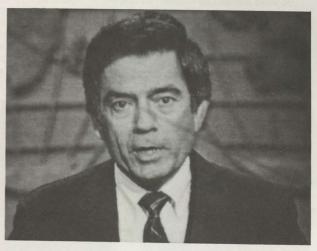
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In the small Central American country of Belize, Mestre says he



CBS FEED FROM TELESTAR off of transponder 7 as received in Ecuador by Khamsi's 13 meter antenna.

has more than 20 such stations operating; all fed by TVRO antennas tuned in to North American domsat birds. His systems are scattered from Mexico to Bolivia and all points between. In virtually each case the stations have gone on the air without government approval and in every case to date the governments involved have backed down after threatening to shut down the stations and to even jail the operators. Television is as always a very volatible product.



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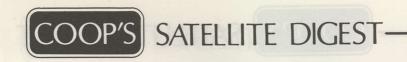
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So while Ahmad Lee Khamsi has opened up regions down to and beyond the Equator for US and Canadian domsat reception, people like Mestre are providing broadcast gear for those who feel the inclination to 'share' their reception with their neighbors using these relatively low power transmitters. Khamsi, as we see here, has even tapped into the Canadian satellite system since by some quirk of Anik D, the best signals (best being highest quality) he sees in Ecuador are



WPIX in New York as received in Ecuador by Khamsi off of TR19 of F4 on 13 meter antenna.

not American (as in USA) **but Canadian.** In fact, if you recall that many of the most desirable ANIK D services are (Cancom by Oak Orion) scrambled, it becomes apparent from the photos here that not only is Khamsi receiving these ANIK-D signals, he is also descrambling them in Ecuador! An Oak Orion 'Personal Decoder' authorized in Canada (see **CSD/2** for **March 15th** for a review of the Oak system) but transported to Ecuador apparently performs just fine some 3,500 miles or more from the ANIK D 'boresight' point in Canada.

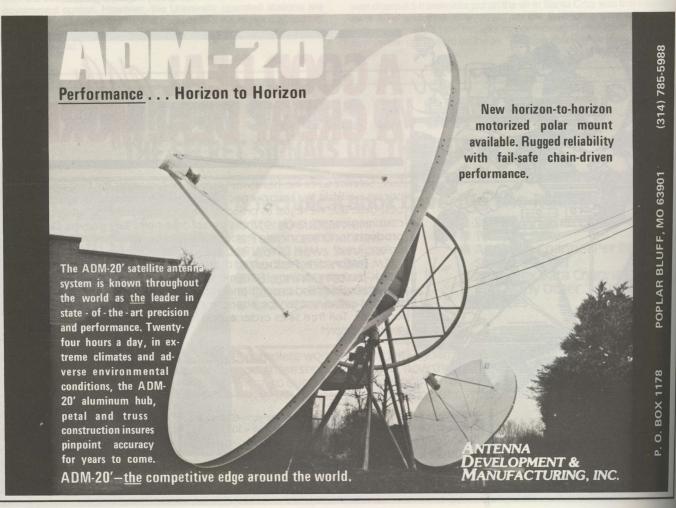
The first wave of US satellite signals drifted into South America back in 1981 and 1982. Those early pioneers made small but significant inroads. The latest wave of signals has made a far greater impression in South America and as they learned in Bolivia, once people have been exposed to satellite delivered television, it may be impossible to 'take it away' from them.

WHEN It Breaks

Everything breaks, eventually. And when it breaks you have to decide whether you repair it, at some expense, or throw it away and start over. TVRO systems are no exception and as we witnessed a year or so ago, there was modest interest in some form of 'system insurance policy' to guarantee the consumer that he would be protected from major repair bills as the system aged.

As our equipment has become more and more reliable, as the OEMs have fine tuned their designs and as designs have become more stable, everything seems to be working better; longer. Most equipment sold through to the consumer now carries some type of identifiable manufacturer warranty; one year is not uncommon as selected bits of systems now carry full warranty (defined as full repair or replacement of defective parts or defective workmanship) out to five years.

Virtually every consumer product sold can be bought with



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extended warranty coverage. Sears has plans, Macy has plans; everyone wants a few extra dollars to give the user the peace of mind that goes with knowing no major repair bills will pop up unexpectedly. Chrysler has managed a remarkable 'comeback' after being down and counted out largely because of the teeth in their warranty plan.

I've discussed this with several of the more progressive dealers and I am learning that dealers are themselves offering 'self-insured' warranty extensions. Let's say the first year of the complete system is covered in one way or the other by the OEMs that built the equipment. The dealer knows this and he tells the customer this 'good news' as part of the initial sales pitch. **But after year one?**

Insurance programs, SFPC or others as offered one year ago, turned out to be difficult to administer and 'messy.' At the time they first came out, I felt very strongly about the need for such plans. Now that they are gone, I feel equally strongly that such plans are no longer necessary. There was a 'time window' during which this type of plan made some sense to the dealer who was being saddled with shoddy equipment and poor OEM response to service problems. Yes, some OEMs still make shoddy equipment but for every firm like this today we have five who make excellent, reliable equipment. So if a dealer still has 'shoddy equipment problems,' it may be because the dealer is continuing to buy from the wrong sources.

If the equipment has gotten quite good, why can't a dealer offer to warrant at least selected parts (such as the receiver and LNA and perhaps the antenna) on his own? This would be a 'self insurance program' where the dealer charges an annual fee, paid before year-two starts and so on down the road, to warrant to the user that in the event of a failure, the dealer will repair the product without additional charge. Yes, there is some gamble in this but perhaps a plan devised by a small receiver OEM will be illustrative.

Haden McCullough of McCullough Communications, Inc. turns out around 100 receivers per week from his plant in Salem, Arkansas. Haden (or HD if you will) sells these receivers primarily to dealers who are within 100 miles of Salem. Haden's receiver design (see CSD for February 1st) is the kind of mature, stable receiver design that evolves after years of learning. Haden knows every resistor and

every capacitor and every transistor on the circuit board like the back of his hand. He also keeps good service records and from these records he knows what parts will fail under what circumstances, and how often. As we were creating a special dealer training videotape recently on Provo, he pointed to a thick film hybrid amplifier. "I have never lost one of those" he offered "and if we have a problem in this area of the circuit, it is almost always this voltage regulator" pointing to another part. "I guess that is what you have to expect when you pay 50 cents for a three pin voltage regulator."

Haden has decided that for ten cents a day (\$36.50 a year, paid in advance) he will warrant his receivers against future defects. His dealers can take out a policy with him at \$36.50 and mark it up a few bucks and sell it to the customer, or, if the dealer doesn't want to get involved, Haden will sell this extended warranty directly to the user for \$36.50. He is not doing this to get rich; he simply knows that after thousands and thousands of receivers out of his plant, what to expect in the way of product failures. And he also knows that if he can offer a 'low cost' extended warranty program to his customers, they are apt to keep on coming back to him to buy more product.

A professional dealer is constantly fighting to maintain his professional stature in a marketplace often overrun by part-time, garagedoor type operators. One thing no part timer is going to mess with is promises of service after the sale. I believe most of these part timers are in this business for the quick buck and if a customer actually pressed them on what type of service they could anticipate 14 months or 14 years after they buy their system, the part timer would give himself away as an opportunist only interested in the initial sale.

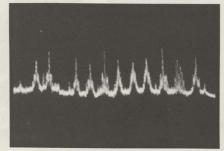
So it occurs to me that if the full-time professonal dealer were to make a BIG thing of his long term commitment to the business and the customer; if the full-time dealer were to sell hard that he will agree in writing to maintain the system after the initial warranty period for a very reasonable fee, the professional dealer will have a nice tool to 'differentiate' his shop from the part-timer who is selling only initial 'discount price.' Selling TVROs is something of a poker game and if you as a professional dealer can 'call the hand' of the part-timer by forcing him to answer direct questions about his willingness to service the system

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forever, under contract, I think the part-timer will 'fold.'

How much should you charge? Most retailer service contracts, such as those offered by Macy's, wander between 15% and 35% of the original equipment selling price for a standard three year period. Some of these contracts 'cheat' a tad by making year one (when the equipment nominally has full OEM warranty protection) part of the three year package. The concept is that when you make the sale, you build in a three year full coverage warranty charge (or option) and 'slide in' year one as part of the three years. In those programs that run for five years, year one is almost always built-in so the actual hazard period for the dealer carrying that warranty is now four years, starting with year two.

Sears likes to collect their extended coverage up front, at the time of initial sale. Others may get the user to sign the contract for extended coverage at the time of purchase, but they defer billing to the 11th month and then collect for the next 3 (5) years before the second year actually starts

In either event the dealer who adopts this approach has to plan intelligently what he does with this income. The safe and sane approach is to determine which part of the 3 (5) year amount would be used up each year, using a sliding scale where less applies in the first warranty year than in the last (under the theory that as things get older, they are more prone to break). Then you set up a separate bank account and deposit those funds into that account. As the year winds down you pull the service record for the customer and subtract the actual costs to you for any warranty work done from the amount earmarked for that year. If you still have money left over, write yourself a check and stick that new 'income' into your regular checking account.

Studies done in the consumer field indicate that the higher the price of a purchase, the more apt the consumer is to agree **up front** to

some form of extended warranty plan. They don't expect free service forever and because refrigerators and TV sets and trucks are sold with optional extended warranty plans, there is a pre-conditioning of the consumer mind set.

To be a stable, growing professional dealer in this field requires that you analyze your own strong points and the weaknesses of your competition. In the area of long term extended protection for the consumer, there is an opportunity for the dealer to be innovative and make his dealership stand out. If you are constantly fighting 'partitimers' who operate out of their garage and you don't like lowering yourself to their low-ball pricing tactic, **sell up**; sell your shop on your ability to stand behind your product for as long as the customer owns it. That's the true mark of a professional dealer in any field.

TURNER In Europe

Several yeas ago I learned that the long range plans for Ted Turner's CNN news service was to make it as worldwide in scope as possible. To that end CNN has established news bureaus in just about every news center in the world, including Moscow. But the flow of news from these world centers back to Atlanta was only part of the challenge; to make the service truly unique and truly worldwide, they had to somehow figure out how to get it distributed worldwide as well.

Well, for more than a year now CNN has been going to Australia via Pacific Intelsat and it goes to closer locations such as Barbados where it is used for three hours per day by the local TV station. You can wake up in Tokyo and watch CNN on your hotel TV set, and you can be in the armed forces in the Indian Ocean or the Philippines or the north Atlantic and watch CNN. The one large population region 'missing' in Turner's CNN coverage has been Europe.

COOP/ continues on page 104





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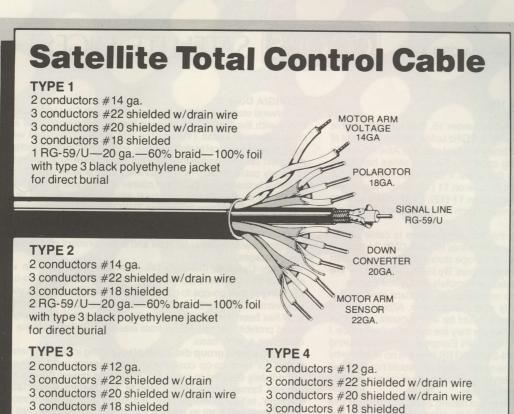
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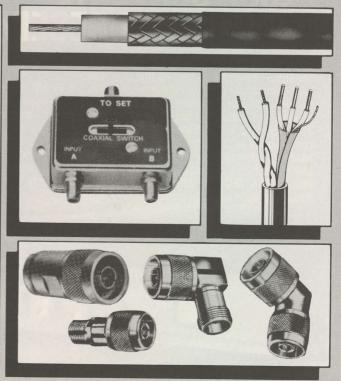
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COOP/ continued from page 100

CNN now says that effective September 15, they will be available 24 hours per day in Europe as well. A 6 GHz uplink signal will fly out of Atlanta headed directly into an Intelsat V bird over the Atlantic. Inside the bird, thanks to the switching capability this bird series has, the 6 GHz uplink will transfer not to the usual 4 GHz downlink band but rather it will come back down in Europe on 11 (12) GHz. Thus in one hop, Atlanta out on 6 and Europe in on 11 (12), CNN will be all over Europe and substantial segments of North Africa and the Middle East like maple syrup on pancakes.

Turner will be marketing this Ku band service to cable and to hotels and virtually anyone else who wants to have CNN 24 hours a day. I suspect that if you travel to Europe during 1986, you will start seeing 'CNN Here' signs in Airport lobbies. By 1987, you may see 'We Have CNN' plastic signs in hotels and motels and guest homes.

Apparently CNN intends to repackage its standard feed for Europe; if not initially, then shortly after inauguration. Allowing for the time differences involved, viewers could be 4 to 8 hours 'ahead' of Atlanta's east-coast time period where they are watching the service. I shall not be surprised if we find the CNN European Service maturing into a combination of CNN/CNN-2 and WTBS (there is no reason why some of the specials such as the recent 'Threads' would not play well in Europe). This will be an English language service of course and that will have some interesting ramifications.

The immediate impact, this fall, of having 24 hour CNN available on 3 foot region Ku band dishes could be sizeable. Ted Turner has quite an opportunity here to export an American product that has the potential of molding a significant amount of European public opinion about the way we conduct ourselves in the USA. Turner could do one more thing to enhance his own image in Europe; a slight name change, to say 'Cosmic News Network' would still be 'CNN' worldwide but the viewers in Europe might be more enchanted by the name change for the C since cable per se means very little to them at this time. Plus, 'Cosmic' sort of says something about the remarkable growth of this truly unique American product.

GEORGIA Does it

Several states, including Georgia and South Carolina, have been toying with the concept of allowing their public owned rural electric cooperatives to install TVROs. The RECs have run out of wasteful ways to spend federal matching funds and where cable TV technology never did seem to bridge that gap that would allow rural cooperatives to supply cable to farm families, TVRO seems to fill a need.

What bothers most people of course is that if you allow a federally supported or state supported rural electric co-op to sell or lease TVROs, you are putting the private TVRO dealer in a very tough spot. The RECs have manpower and funding which is awesome. They have promotional tools that range from bill stuffers to their REC customers to huge dollars available for print and entertainment media commercial messages.

South Čarolina, this past fall, went out for 'bids' from various antenna and receiver suppliers; they wanted to allow their co-ops or a sampling of their co-ops to get into TVRO. Georgia perhaps started it all several months earlier and now the Georgia RECs have a problem; a bill has been introduced into the Georgia General Assembly which would prohibit Georgia RECs from leasing or selling satellite TVRO dishes on a retail basis.

The Georgia group did a trial also, putting in approximately 100 dishes for rural co-op customers. The program went so well they immediately decided to make it a state-wide project. That's when a recently formed group, the 'Satellite TV Dealers Association of Georgia', talked a Georgia state legislature representative into sponsoring a bill (HB 639) to make it illegal for these firms to sell TVRO systems. Interestingly enough, some years ago the Georgia RECs thought they wanted to be in the cable TV business as well and the cable firms in the state had to round up support for a state law which ultimately denied the RECs access to cable TV operation.

It is a shame that it took something like this threat in Georgia to create a recognition that the state's TVRO dealers needed to 'band together' for the good of their industry. Perhaps now that they are talking to one another, albeit about a common threat, they can set an example for other states who have yet to take that 'state association'





PAGE 106/CSD/4-85



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step'. Ultimately, as the industry matures, it will take state organizations in all 50 states to keep track of threats such as the Georgia Electric Member Cooperatives plan to stick dishes in tens of thousands of rural Georgia backyards.

CHAIN Letter Instigators

Back last July I started receiving two page form letters from OEMs and distributors. This form or chain letter was a 'statement' or 'petition' which somebody had created as an apparent tool to force the industry to rethink out its TVRO show schedule.

This particular letter came out right after the Niagara Falls STTI show of last June; a show which those who attended largely found sparse of potential customers. The person who originated the letter cleverly forgot to sign it but he did ask each recipient to sign the 'petition' which started off with:

"I find that it is such a tremendous financial strain on dealers .. (that) ... I recommend that the current and distributors. show promoters (SPACE and Mr Schneringer) . . . help us limit the number of trade shows to two per year on a national basis and possibly some smaller regional shows if needed.

There are ten places for signatures and the concept was that a signer would pass it on to others in the trade and ultimately " ward the letter to Bob Cooper at his Florida address and request him to be the spokesman to coordinate both SPACE and STTI

Well, I have filed away these petitions and have quite a number now (over two dozen). And I'm not quite sure what to do with them. Rick Schneringer called me shortly after the petition came out to chew me out for 'getting involved' in the show business. He called before I had even seen one of the petitions and had no idea what he was talking about. Rick also worries that when his contract with me runs out (May of 1986), which currently prohibits me from actively participating in trade shows, that I might get back into the show business. May 1986 is a long ways away and I'll cross that bridge when it gets

Certainly a couple of hundred industry suppliers did feel strongly enough about 'too many shows' to take the time to read the unsigned two-page letter/petition and then sign it and then send it on to somebody else to read and sign. Still, what should I do with this stack of petitions?

Tell you what I would like to do. I'd like to hear from this clever person who started this chain petition. I'd like to talk with you about the concept that we have too many shows and I'd like to hear your direct ideas about what might be done in say 1986. Maybe all of this is no longer important and the industry is happy with the three-per-year schedule we seem to be temporarily settled into. In any event, I hate to see the efforts of those who were clandestinely behind this petition drive simply 'die' and if you'll get in touch with me, I'll agree up front to keep your identity quiet and we'll just have a nice rational talk about what to do next, if indeed anything should be done next.

'THE' 1986 TVRO Handbook

The most valuable book I ever owned was published in 1951 or so. I paid \$4 for it at a local electronic supply store. Inside I found clear, concise instructions on building a TV camera (using an iconoscope imaging tube no less!) plus 400 additional pages describing every possible circuit and system I would ever need to be an 'amateur radio operator.' The ARRL Handbook has been a 'bible' to electronic and communication enthusiasts for more than sixty years. I buy a new edition each year (now close to \$15 a copy) and usually wear it out before the next edition is released. They run to more than 600 pages these days

More than two years ago, in what spare time I could manage, I began work on a similar 'handbook' for TVRO. The further along I got the more I realized that this was no task for a single human being. Late in 1984 I calculated that the first edition could be released for the year 1986, it would be first distributed at the 1985 Nashville STTI/SPACE Show, and I had to find some help getting it together! There will be 544 pages in the first edition and as the ARRL Handbook is the 'bible' of two-way communications, 'The 1986 TVRO Handbook' will be 'the bible' of TVRO. I want you to be able to find every possible fact and aid and assistance you need to install TVRO systems inside. From big dishes to small dishes, from single conversion to BDC, from DOMSAT

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HADEN McCullough at work on Provo as we prepare the 'single conversion receiver' training tape for release in September.

to Intelsat. All in one place, right down to tables that will tell you how far you can run motor control voltages through various sizes of wire and still have the drive work.

Just a couple of weeks ago we sent out a ten page 'brochure' describing 'The 1986 TVRO Handbook' to more than 400 OEMs and distributors in our industry. We told them what the Handbook will contain, and gave them several ways to 'participate' in its creation and distribution. I think we have done this one right.

Concurrent with our releasing of 'The Handbook' we will also be releasing the first of a comprehensive series of installer training (video) tapes. The initial series of tapes will concentrate on teaching you as you have never been taught (or exposed) before to understand and troubleshoot TVRO receivers, antennas, single/double and block conversion systems, motor drives and so on. We have an interesting approach to the videotapes.

Haden McCullough of McCullough Communications spent a week with me on Provo early in March and we ended up laboring around 25 hours under hot TV lights creating the basic video for the special video tape which will teach you how to understand, trace circuits through and repair single conversion receiver systems. Using modern video techniques, you will learn how a receiver has failed (or is failing), and how to repair the receiver in your shop. This is generic information which will apply to anyone's single conversion receivers.

We will be doing the same thing with block downconversion receivers and Luxor's talented **Bo Lindqvist** will come from Sweden to spend nearly a week on Provo with me creating the BDC training tape. When we get done and the professional tapes are available this fall (in Nashville) you will be able to sit an employee down with a combination 'written and videotaped course' and when he gets done, he will have been trained to repair equipment for you.

And as you might suspect, the same basic data will enhance our '1986 TVRO Handbook' because users of 'The Handbook' will have in front of them, for the first time in our industry, real honest-to-gosh step by step trouble shooting and training information.

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I said I could not do all of this alone. So I carefully considered whom I would approach to be consulting or contributing editors to 'The Handbook.' Have you ever heard of **Doctor John Kraus**? Doctor Kraus, or John if you like, is the man who turned the mystery of 'Radio Astronomy' into an art and science. He has written every authoritative text and non-text book in this field and if you are a ham radio operator (or know one), the 'Kraus Beam' or '8JK Antenna' will immediately mean something.

Doctor John Kraus is a part of 'The 1986 TVRO Handbook' team. I spent a day with John at his home in Columbus, Ohio recently and we worked on his area of expertise; microwave (parabolic) antennas and feeds and low noise amplifiers. Doctor Kraus created the 'Big Ear' radio astronomy deep space dish for Ohio State University and that single radio astronomy antenna (all 300 feet plus of it!) has probed deeper into the cosmos searching out the mysteries of

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deep space than almost any other deep space system in the world today. We have some very exciting microwave learning/teaching aids coming from John and Ohio State as well, and we will begin sharing excerpts from them on BORESIGHT shortly. Once you see this amazing man at work on the BORESIGHT TVRO program on F4, I believe you will be as excited as I am about having him helping our industry mature to new levels of technical competence.

My companion choice was a lady technical writer. Her name is Carol Rosin and 'Carol Sue' was the spokesperson and chief aide to Doctor Wernher von Braun until his death from cancer. Carol worked with von Braun when he was at Fairchild responsible for the first American experimental satellites at NASA; the ATS-6 which ultimately ended up sending TV programs into India way back in the early to mid 70s for example. Carol was at that time responsible for coordinating the educational-use (and early teleconference 'world town meetings') on ATS-6

Carol is a very unique lady. She co-authored SPACE CAREERS with Charles Sheffield and to date that is the best book ever created which explains to high school, college or post-graduate students all of the professional career opportunities in space-related (including of course space communication) industries. Carol is also very much involved in efforts to transfer some of the space weapon dollars into programs that will result in greater 'peaceful uses' of space in the years and decades ahead. She appears frequently on CNN plus the three major US (commercial) networks to debate the merits of ASATs versus more peaceful uses of space. She came down to Provo for several days of intensive work on 'The Handbook' in mid-February,



DOCTOR JOHN KRAUS, the man who made 'radio astronomy a science' and the 1984 recipient of the much cherished 'Edison Memorial Award' at his 'Big Ear Dish' in Ohio.

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CSD's 'Fifth-Birthday-TVRO' issue (October 1984) . . . telling the story of how the TVRO industry evolved, developed, and fought its way into the billion-dollar consumer world. Where the equipment came from, where the rules and regulations came from, how the industry leaders developed. This is the full story of all of the major points as our technology and industry developed. From \$36,000 home terminals in 1979 to the \$995 home terminals of 1984; from 16 foot dishes that did NOT move to 4 foot dishes that blend into the roofline. From \$3,000 LNAs to \$99 LNAs, the trials and tribulations and the big events that shaped and created an industry which many believe will become the-number-one consumer electronics industry of the late 1980's and 1990s! If you want all of the important facts, and an easy to use industry reference book, this special CSD Fifth Birthday Issue is for you. And the price is right; 180 pages, \$15 shipping charges paid, worldwide.

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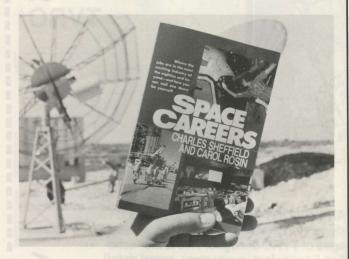
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fresh off a three week trip to Moscow where she was 'lobbying' the Russians on the same 'peaceful-uses-of-space' issue. Spending five minutes with Carol Sue is the equivalent of spending five hours with most mortal people; she is a very 'intense' person.

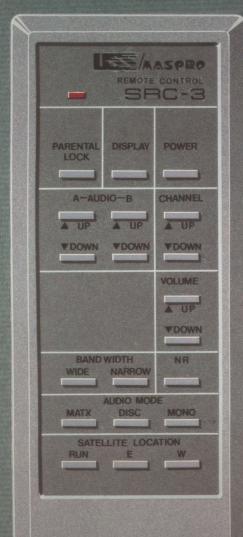
Carol came into space technology from the educational field (she, also, is a 'Doctor'; I only associate with good people!) and she has that unique ability to cut through the 'crap' and explain a complex subject in lay terms, without offending the engineers in the crowd. Carol will be concentrating on a special segment of 'The Handbook' as well as be in charge of making sure all 544 pages read at a level which a novice dealer can comprehend while at the sametime not turning off the veteran installers. Some challenge but she is more than up to it.

In addition to Doctor Carol and Doctor John, I have lined up ten other individuals from within our field and other space fields to oversee certain specilalized chapters in 'The Handbook.' They won't share the front cover credits with Carol Rosin and John Kraus and I, but their contributions will be very evident as you turn into a new chapter dealing with some specialized subject such as feeds or motor drives. I want to do this 'right' and we are doing everything we can to make this the **best \$19.95 value** you ever saw in the TVRO world. All 544 pages of it

If you happen to be or you happen to represent either an OEM or a distributor who somehow **did not receive** our ten page booklet describing 'The 1986 TVRO Handbook' back in mid-March, you are invited to drop Carol Graba a line (CSD, P.O. Box 100858, Ft. Lauderdale, Fl. 33310) or call her (305/771-0505) to request a copy. Nobody will want to be left out of this one, I assure you!



DOCTOR CAROL ROSIN lets he hair down at the CSD Lab Site on Provo after three weeks in Moscow; watch for her on CNN and other news-media outlets.



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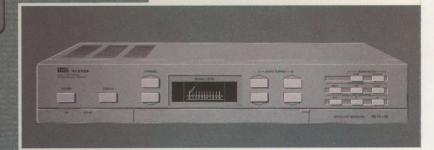
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